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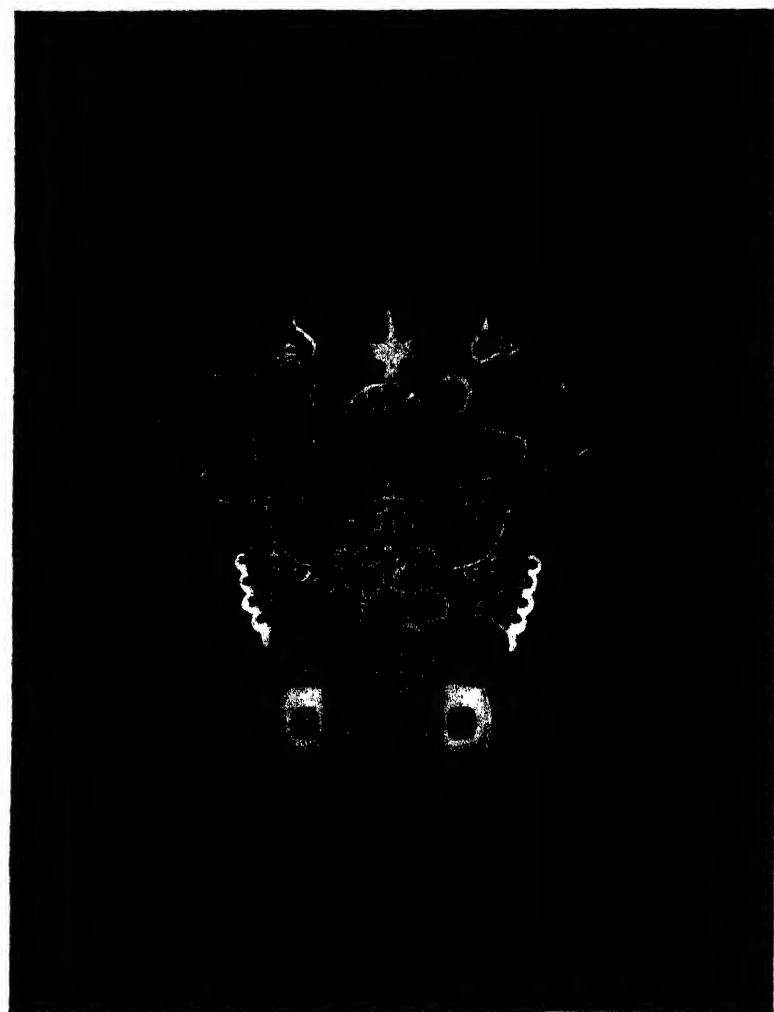
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MEN OUT OF ASIA



HAROLD STERLING GLADWIN

MEN OUT OF ASIA

WITH A FOREWORD BY EARNEST A. HOOTON

ILLUSTRATED BY CAMPBELL GRANT

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MEN OUT OF ASIA

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Foreword and Hindthoughts

Archaeologists dig up the remains of extinct cultures and of defunct peoples for the purpose of reconstructing history. They study implements, weapons, ornaments, houses, and other structures and objects uncovered, and usually depend upon physical anthropologists for the study of bones and skeletons. You may think that grubbing up stone tools, potsherds, bones, and rusty iron or gangrened bronze is a dirty and gruesome business. Actually it has most of the excitement and the romance of treasure hunting, although the stuff found usually has little monetary value and, ordinarily, is not beautiful. Yet the archaeologist gets a kick out of finding it. However, by the time he has cleaned, repaired, catalogued, and classified his collection, most of its romance has been rubbed off—at least it does not survive in the technical archaeological reports that he finally writes. Of course, there is a kind of smash-and-grab archaeological adventurer, who loots graves, burrows in ruins, and writes colorful and generally mendacious popular books about his scientific felonies. These public enemies of archaeology should be liquidated, together with the pack rat collectors of archaeological relics who keep no written records of their depredations.

I am trying to hint that the professional archaeologist, although inwardly a romanticist, has to work so carefully and slowly with complicated scientific techniques of excavation, recording, reconstruction, and analysis, that his finished publica-

tions sometimes seem completely scientific, but lifeless. Too often they provide the reader with no connected account of the civilizations they purport to reconstruct; they impress him as tedious catalogues of ancient junk. The conflict in the archaeologist between the treasure-hunting urge and the meticulous caution of science results in a victory of the latter by attrition. The fruits of that victory are sometimes rather dessicated.

Harold Gladwin is not a professional archaeologist in the sense of studying the subject at some university or research institute, and then making a meager living by teaching, digging, and putting pots in museum exhibition cases. He is an amateur, academically in that his record is not besmirched by a Ph.D. degree, and, in a pecuniary sense, because his hands are lily white. However, he has done as much dirt archaeology (which means real digging) in contrast to armchair archaeology (reading and speculating) as nearly any professional in the American field. He knows fully and utilizes skillfully the elaborate and precise techniques of the science. His excavations are models of method, his reports voluminous, orderly, and overwhelmingly documented. He is not a pot hunter, not a romancer; he is an expert practitioner.

Yet Gladwin remains an untrammelled and incorrigible amateur because he is not content to deal exhaustively with discrete bits of archaeology. He wants to put the pieces together—culture, bones, and all—to make a complete picture of the New World from the first arrival of man down to Columbus. He is unwilling to wait until all the pieces have been found. So he goes ahead (*splendide audax!*) and writes *Men out of Asia*, disregarding the guillotine blade poised above his outthrust neck and all the old ladies of archaeology sitting and knitting in sadistic anticipation. Furthermore, to the venial offense of

giving vent to anthropological heresies, he has added the mortal sin of writing wittily and well, and of having his book illustrated by a master of irreverent caricature.

I, myself, do not agree with all Gladwin's theories and conclusions hereinafter set forth. In fact, I am profoundly skeptical of some of them, for example, the Nearchus fantasy. I doubt that America was peopled by successive migrations of different pure races, first Australoids, then Negritos, etc. However, I am fairly sure that the earliest arrivals here were non-Mongoloids carrying archaic White strains ("Australoids," if you like) probably mixed with Negritic elements and with whatever else was kicking around in Asia before they crossed Bering Strait. Unquestionably there were several subsequent groups of immigrants, some of them full-blown Mongoloids. I should hesitate to associate these several waves of American pioneers with specific archaeological cultures and linguistic groups, but I am perfectly willing to have Harold Gladwin try it.

I stand firmly with Gladwin in rejecting the supposition that these various Asiatic invaders brought with them to the New World nothing but a repressed desire to indulge in independent invention, that they came with culturally empty hands, but brains stuffed full of patents to be filed only after arrival. Surely, the later-comers must have kept much of their Asiatic cultural heritage, which was to be modified and elaborated in the new environment. I have no use at all for the anthropological isolationists who are determined to maintain the incredible dogma that there was no diffusion of inventions and ideas from the Old World to the New, but only of naked human animals. This, of course, does not mean that I identify the Mayas with perigrinating Egyptians, or the American Indians in general with the Lost Tribes of Israel.

Probably no reputable American anthropologist has published as subversive a book upon the peopling of the New World as *Men out of Asia* since Roland Dixon wrote his *Racial History of Man*, which he usually referred to as "my crime." Yet I sometimes think that Dixon was more to be admired for that book than for any of his more cautious and reputable works. Scientists who are always afraid of being wrong, some way or other never manage to be really right. I think that Harold Gladwin is at times resoundingly right, and at other times magnificently wrong. He is not pusillanimous, either for better or for worse.

After I had read Gladwin's manuscript and looked at the tail piece drawing, I wrote to him, "Harold, you will have to move over in your doghouse and make room for me, because I like your book." I might better have invited him to share my own commodious doghouse, rendered homelike by years of uninterrupted occupancy.

EARNEST A. HOOTON

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(By request)

Introduction

This book deals with American anthropology, and when you pick up such a book, there are a few things that you should know before you begin to read.

First, although anthropology is said to be the "whole science of man," it is really not a science in the sense that astronomy, chemistry, and physics are sciences, but rather a philosophy which embraces a large number of special subjects, such as archaeology, ethnology, sociology, anatomy, language, and the whole range of man's activities and make-up. It is essential, of course, to employ the most exact and scientific methods in assembling evidence, but it should always be borne in mind that there never can be an infallible verdict as to the interpretation of the vast amount of detailed and specialized evidence that is now available, and that is constantly growing. There is, therefore, no reason why you should not form your own opinion, but with the condition that you will be willing to change it when and if you find new evidence that goes against you.

Second, when you dabble in anthropology, you are dealing with human activities, and so it is wise not to believe all that you may hear or read. (This advice applies equally well to this book.) We shall probably never be quite sure as to how and when the various American civilizations originated and developed. The most we can hope for is that reasonable and logi-

cal explanations will be advanced, and in weighing these, you must be your own judge and jury.

We are going to offer an explanation that will be a radical departure from those in current circulation, and I shall be the first to admit that this tale will need a great deal of patching and strengthening before it will carry much weight. This may seem a strange way to launch a new theory, but I am more concerned in opening up new channels of inquiry than in trying to provide pat answers to all the questions that are plaguing us. So, as fair warning of what is to come, I will hoist my colors and declare:

First, I think it highly improbable that all the traits that constituted native American civilizations were invented by American Indians without any contact or influence from the Old World.

Second, I think that most, if not all, of the duplications of Old World traits which have been found in the Americas were carried in from Asia, either through Alaska or across the Pacific.

Third, I think that the origins of the civilizations of Mexico, Middle America, and the Andean region were all much more recent than has heretofore been supposed—so recent, in fact, that some sort of a connection may be discerned between the first stirrings of these civilizations in the New World and the upheavals and the dislocations that were taking place in the Old World shortly before the beginning of the Christian Era.

I know there have been many men who have questioned the ability of American Indians to have originated and invented independently all the arts, crafts, and customs which they admittedly knew and practiced. And I know there have been many men who have claimed that the duplications of Old

World traits, which have been found in the New World, were the results of diffusion from Asia to America.

But I do not know of anyone who has yet been rash enough to try to connect the origins of American civilizations with definite causes, at definite dates, in the progress of Old World history, and it is for this reason that I have said this tale will need support and will undoubtedly need to be changed. This, however, is the way that every theory should be treated, and no harm will be done if when a new idea is launched it is regarded with due reserve, but also without prejudice.

And now, with this apology behind me, I will assume that your mind is open, that you have no prejudices to overcome, and that we can go on to seek the truth, the whole truth, and nothing but the truth.

HAROLD STERLING GLADWIN

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New Worlds for Old

UNTIL A few years ago, American anthropology was between the devil and the deep blue sea—the devil, on the one hand, being the insistent denial that men had entered the New World *before* 5000 B.C.; the deep blue sea, on the other hand, being the equally insistent denial that any men had come to North America *after* about 3000 B.C., since no American Indians were supposed to possess any knowledge of the pottery, textiles, metallurgy or architecture which were current in the Old World at that or any later time.

As to the lower limit, it is no exaggeration to say that, until recently, the High Priests of American Anthropology spent a good deal more of their time in trying to prove that evidence of man's antiquity in the New World was faked than in seeking new knowledge.

Some of the claims to great age were so extravagant that they were easily disposed of, as, for example, when someone found a pictograph of a lizard on a canyon wall in northern Arizona and advanced it as proof that men and dinosaurs had been contemporaneous. Other claims were harder to silence, as that of the man who once lay down in the gold-bearing gravel beds of Calaveras County, California, and covered himself with a lava flow as additional evidence of his antiquity. A few have never been completely discredited, such as the Lansing man and those who

burrowed down into the Nebraska loess and the Trenton gravels, whose ghosts still haunt the halls of anthropology.

Then, in 1926, evidence was uncovered at Folsom, in the northeastern corner of New Mexico, which showed that men



had been hunting bison there long before 5000 B.C. Since 1926 several other instances of respectably ancient man have been found, so that it no longer stamps a man as a scientist to deny such antiquity.

With the 5000 B.C. lower limit sinking beneath their feet, the Old Guard swarmed on the 3000 B.C. upper limit, and here we

can leave them, sitting on the safety valve, while we explain how they came to find themselves in this predicament.

It all began as far back as the sixteenth century when the Spaniards invaded Mexico and Peru and were confronted with heathen replicas of their own society. To their delight the conquistadors found not only that the things which were valued



in their own land—gold, silver, emeralds, turquoise—were esteemed by the Indians, but also that the heathen could be induced to part with their treasures in exchange for beads, sometimes of glass, but more often of perspiration induced by a little pressure of the thumbscrew or the rack. So the next 200 years were spent in rounding up everything which could be lifted and sending it back to Spain.

During the three centuries from 1500 to 1800, various explorers—Spanish, Portuguese, British, French, Dutch—returned home

with tales of the natives of the New World, their handiwork, their monuments and the things they ate and drank and smoked. Then, in 1804, Americans took a hand when Lewis and Clark made their expedition to the Pacific coast and returned with a large collection of Indian objects (which are now in the Peabody Museum at Harvard).

Following the Louisiana Purchase, traders, trappers and survey parties trekked westward over the Oregon Trail through Nebraska, Wyoming and Idaho, and a few years later, in 1824, one reads of the beginning of the Santa Fe Trail which established contact with the Southwest, at that time a northern province of Mexico. In 1846 came the war with Mexico, as a result of which we added the Apache, the Navaho and the Pueblo Indians to our other troubles, and in 1847 Brigham Young led his Mormons out to what is now Utah, two years ahead of the California gold rush.

From an anthropological point of view the gist of all this is that at about 1850 there was a shift in interest from the various Algonquin tribes of the eastern seaboard to the Indians west of the Mississippi. Ever since the first English colony had been founded on the James River in 1607 our forefathers had been at war, off and on, with one or more of the Algonquin tribes, but there was little curiosity as to the origin or culture of the Indians with whom the colonists were fighting. Cooper's *Leatherstocking Tales*, written between 1820 and 1840, gives a fair indication of the anthropological knowledge of the day.

While Cooper was writing his tales of the Algonquin, Mohican and Iroquois, the pioneers who pushed westward in their wagon trains were becoming increasingly aware that there were many other kinds of Indians. As soon as they crossed the Mississippi they were in the country of the Sioux in Missouri, Kansas,

Nebraska and up into the Dakotas; Pawnee in western Nebraska; Cheyenne and Arapaho along the Oregon Trail in Wyoming and down into Colorado; Utes in Utah; and, if they followed the Santa Fe Trail into the Southwest, they met Apaches, Navahos, Pueblos and Pimas. Some were friendly, like the Pimas, but most of them fought against the rising tide of white settlers who were



depriving them of their hunting grounds. It can be made into a very sad tale of oppression in which the noble redskin was the victim of the white man's greed, but another side of the story, and one which is not emphasized by the sentimentalists, is that many of these same tribes—Ute, Navaho and Apache—had for centuries spent most of their time preying upon each other and also upon their sedentary neighbors. In reality it was not so much a racial war between red man and white as it was the eternal fight between farmers and nomads—the haves and the have-nots. For 500 years, prior to 1800, the Indian farming tribes, Pueblo and

Pima, had been decimated and their culture destroyed by the incessant persecution of the Navaho and Apache. After 1800 it was the nomadic Plains tribes which got the worst of it, as white settlers took over their hunting grounds and turned the sod.

For some years, Americans—settlers and soldiers alike—were too busy fighting these western tribes to pay much attention to who they were, what, except fighting, they were capable of doing or where they came from. It was an Englishman who started this ball rolling. In 1829 James Smithson, a British chemist, died in Genoa and left £100,000 to the United States government "for the increase and diffusion of knowledge among men." It took Congress several years to decide that there was no joker in the bequest, and also to decide how best to fulfill its purpose, but at last, in 1846, the Smithsonian Institution was founded. After that it seems to have taken 33 years for the scientists to make up their minds that knowledge would be increased by investigating Indians, because it was not until 1879 that the Smithsonian formed the Bureau of American Ethnology for the expressed purpose of studying the native peoples of the Americas.

In 1879 the situation was confused, but a few high lights could be picked out above the murk in which hunting and marauding tribes lived and had their being. As far back as the sixteenth century there had been "relacions" and "diaries" which had been written by ecclesiastics and soldiers about the things they had seen in Peru, Central America and Mexico, and these were topped off with Stephens' *Incidents of Travel in Central America, Chiapas, and Yucatan* in 1841, followed by his *Incidents of Travel in Yucatan* in 1843; and Prescott's *Conquest of Mexico*, also published in 1843, and his *Conquest of Peru* in 1847. It was, therefore, common knowledge that there were some very elab-

orate cultures in the New World and this knowledge was sufficiently small to enable those who so desired to endow these cultures with qualities comparable to the early civilizations of Egypt and Assyria.

Hence, the problem in 1879, which the pioneers in American anthropology were compelled to meet, was to decide how these elaborate American cultures had originated. Were they offshoots of Old World civilizations, which themselves were still but little known? If so, what was the connection? Could there be some other explanation?

To obtain a thorough grasp of the situation you should begin by reading *The History of Ethnological Theory* by Robert H. Lowie, but a general idea can be formed by bearing one or two points in mind. You should realize, for instance, that during the nineteenth century ignorance of ethnology was not confined to America. In all countries curiosity as to the origin and early gropings of men was just beginning to rouse and stretch after its long sleep through the Middle Ages, and, as usual during the process of waking, men were more inclined to argue about the way they thought things should have happened than to tackle the endless job of accumulating evidence in order to show what actually had occurred.

Coming on top of Darwin's *The Origin of Species*, which was published in 1859, it was natural that the men who undertook to coin theories to account for the development of human culture should have applied the principles of biological evolution which were beginning to meet with increasing favor.

In addition to Darwin's theories, there was also abundant evidence on all sides to show that contemporaneous cultures had been derived from earlier simpler forms, and the occasional voice

which was raised to argue that the primitive condition of some groups might have been due to a lowering of standards from an earlier but higher plane, was quickly stilled.

If the advocates of the evolutionary school had been satisfied with the doctrine that culture had developed from simple forms and was still in the process of developing, there would have been little with which to quarrel. Unfortunately, however, some men took the idea that all cultures had evolved from the simple to the complex, and broadened this to mean that all cultures had not only so evolved, but also had developed along parallel lines by passing through the same series of stages. This was clearly brought out by Lowie when he quoted Letourneau, as saying:

"All the civilizations past or present had their barbarous or savage infancy, out of which they have slowly and painfully evolved . . . ; the rude contemporary races, the lowest of which border on animality, picture for us, in general fashion, the slowly progressive phases which were traversed by the ancestors of civilized peoples."

And Pitt-Rivers:

"The existing races, in their respective stages of progression, may be taken as the bona fide representatives of the races of antiquity. . . . They thus afford us living illustrations of the social customs, the forms of government, laws, the warlike practices, which belong to the ancient races from which they remotely sprang, whose implements, resembling, with but little difference, their own, are now found low down in the soil, in situations, and under circumstances in which, alone, they would convey but little evidence to the antiquary, but which, when the investigations of the antiquary are interpreted by those of the ethnologist, are teeming with interesting revelations respecting the past history of our race. . . ."

For those who believe in the doctrine of the evolution of culture, these ideas are not difficult to accept until you take them apart and realize just what is meant. Let us suppose, for example, that you are a member of English society during the reign of Queen Victoria, about the time when these theories were being coined, and that you become curious as to the kind of life your



remote ancestors used to live. All that you would need to do, according to this theory, would be to select the appropriate tribe of some living people in order to obtain a complete replica of your former incarnation—social customs, forms of government, laws and warlike practices. If you should like to see how your forefathers managed their affairs about 100,000 years ago, then you might look over some Pygmy tribe, such as the Andaman Islanders; or, if your curiosity should rise to about 50,000 B.C., then you might try a band of Australian natives, such as the Arunta, and

so on up the scale, with living representatives somewhere in the world for each stage in your ancestral progress. The only difficulty that you would have to overcome would be to arrange the various tribes in their proper order in the scale of progress; and it might also save you some embarrassment to make certain of your own position in the scale—but how to go about doing this, we cannot tell you.

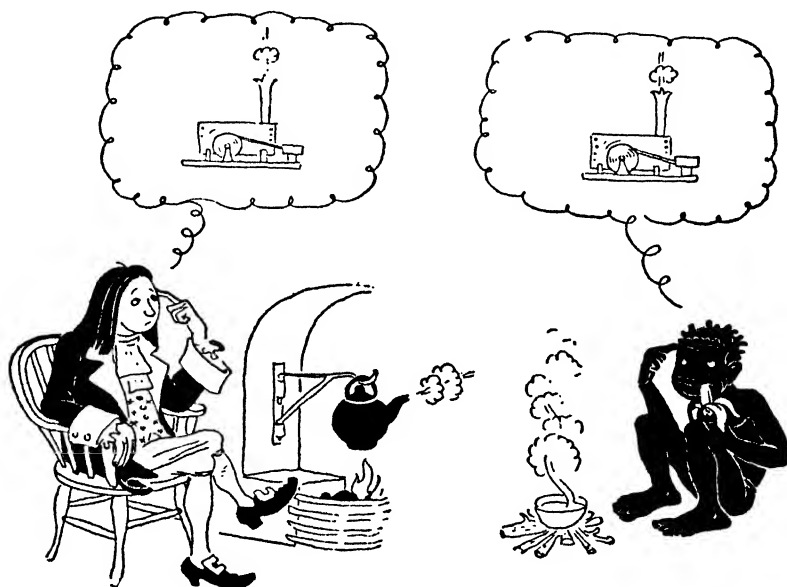
However this may be, in the midst of theories as to how cultures were evolving, here, there and everywhere, along parallel lines but admittedly at uneven rates, it was a German, Adolf Bastian, Director of the Ethnological Museum in Berlin, who conjured up an explanation for the *how* and *why* of these phenomena. It was his idea that cultural evolution followed certain laws or principles, and, since it is important that this theory should be fairly presented and clearly understood because of the influence it has exerted upon American anthropological thinking, I quote from Lowie's description in his *History of Ethnological Theory*:

"What are these principles? The one that most directly affected contemporary thought was unquestionably his belief in independent development. He did not, indeed, deny diffusion, but he insisted that in each case it must be proved by detailed evidence. His position was thus diametrically opposed to both Graebner's and to Balfour's since he contended that by a general law the psychic unity of mankind everywhere produced similar 'elementary ideas.' Only different external stimuli would evoke different responses, whence the origin of geographical provinces. At a higher stage, contact with other cultures may supersede such physical conditions as a stimulus, whence history and cultural development proper. But compared with the basic laws, these historical causes are of subordinate significance."

To our early leaders, struggling in the labor of giving birth to a

theory of American origins, Bastian's idea came as a heaven-sent whiff of anesthetic. They gulped, then closed their eyes and their minds to any other explanation.

This mental accouchement has now lasted for over 50 years, and, although many of the rising generation of American anthropologists are showing a strong and increasing dislike to being



branded as Psychic Unitarians, nevertheless it would seem that they should be willing to accept the label as long as they insist that the duplication of Old World traits in the Americas was due to independent inventions and duplicate discoveries by American Indians. When one attempts, therefore, to trace the causes which were responsible for the present predicament of American anthropology, Bastian's theory of Psychic Unity must be granted foremost recognition. Having started 70 years ago as a theory, it

has now become entrenched as dogma that American Indians, by their own unaided efforts, discovered and invented anew all of those things which constitute the advanced cultures of the New World—metallurgy, pottery, temple pyramids, hieroglyphic writing, calendar systems, astronomical reckoning, the loom, weaving techniques which include resist-dyeing (batik), tapestry, gauze weaving and an endless number of other things. Judging by Old World standards, it would have required not less than 3000 years for the rediscovery, reinvention, and subsequent development of all these traits. As none have been found at dates which can be set as prior to the time of Christ, this explains the upper limit of 3000 B.C., mentioned above, since if people had entered the New World at any time subsequent to 3000 B.C., they would naturally have introduced the knowledge that was current in Asia at the time of their departure—which is merely another way of saying that native American civilizations were the results of diffusion from Asia.

Who did the inventing, where they did it and what happened to the evidence of the inventive stages and 3000 years of evolutionary progress are still no more than theoretical postulates that retain their popularity only for lack of more reasonable explanations.

Considering the great amount of work that has been done in the areas of our high native civilizations, I think it is time that some convincing evidence should be brought forward to support the theory. One does not ask that all the points of origin should be located, that all the inventors should be identified or that all the steps in all the inventions should be found, but surely it is not too much to ask that we be given some concrete evidence to support the idea that American Indians, starting from scratch and unaided, were able to accomplish, in a much shorter period

of time, exactly the same things which required several thousand years of striving by the rest of mankind. Certain it is that during the last 500 years of recorded history, Indians have given no indication whatever of possessing such superlative genius.



Two other points of Bastian's thesis, which seem to have been forgotten or ignored, are that Psychic Unity "everywhere produced similar '*elementary ideas*'"—to use Lowie's phrase—and also that "At a higher stage, contact with other cultures may supersede such physical conditions as a stimulus, whence history and cultural development proper."

If I understand Lowie and Lowie understood Bastian correctly, these sentences put a meaning to the theory of duplicate

independent invention which is entirely different from the interpretation that has been used to explain the origins of native American civilizations. The uniform *elementary ideas* of Bastian's theory were obviously intended to explain the duplication in various places of simple or elementary traits, or of those things which are generally admitted to have been carried into America by immigrants from Asia.

In considering the advanced traits which are characteristic of the higher stages of culture, Bastian turned to diffusion when he recognized that contact with other cultures might supersede the stimulus of physical conditions in guiding cultural development. Yet it is precisely in regard to the origins of these higher traits that American anthropologists have applied his theory of duplicate independent invention and discovery.

On top of everything else, it should be remembered that Bastian's theory of Psychic Unity was coined to explain the cultural resemblances which he had found while traveling in Africa and Asia and was not applied by him to cover analogies between Old and New World traits, of which, in 1870, he had probably never heard. Yet, in 1947, one hears nothing of Psychic Unity as the explanation of cultural resemblances in Africa or Asia; the theory has apparently only survived in default of any other acceptable explanation to account for the cultural duplications as between Asia and the Americas.

The problem provides an interesting exercise in the study of human aptitudes, and in case you are still undecided as to what to believe, we will cite a modern example.

Let us suppose that you are taking a fishing trip in Canada and you come across a man, say about six feet tall, brawny, sandy-haired, maybe freckled. He is fishing for trout with a dry fly, and he is smoking a briar pipe. Having no waders, he has taken off his

clothes and is wading in the middle of the stream with nothing on but a tam-o'-shanter.

Your young son says that the man looks like a Scotsman, but you are a Scientist (with a capital S) who does not like snap judgments, and so you reprove your son and warn him against jumping at conclusions. (The boy is duly impressed with your conservatism.)



A little farther upstream you find the man's camp. A kilt and sporran are hanging on a branch; there are a flask of whisky on the table and bagpipes on a chair. Things look pretty bad, but, rather than admit the obvious, you explain that all of these things which appear to be Scotch are really nothing more than independent inventions which the man had thought of because he needed them. The fact that his possessions and tastes happen to be the same as those of a gillie on a trout stream in Scotland is, therefore, merely an example of the Psychic Unity of Mankind, a

theory which ordains that all men react to the same kind of environment in exactly the same way. Any man who habitually spends his time fishing for trout in water up to his waist will, of course, invent kilts, since it is difficult to pull on trousers over wet feet; the sporran is needed to tell the front from the back of the kilt; the bagpipes are needed to keep other people away and so prevent them from trespassing on your preserve, et cetera.

As an exercise in mental acrobatics it is fun to think up such alibis, but they fall somewhat short of providing a basic principle to explain how various tribes of Indians, in the Americas, acquired traits and customs which, in many instances, exactly duplicated those of earlier civilizations in Asia. So, since we place no faith in the theory of duplicate independent invention, the time has come for us to submit the explanation of *diffusion* as having been at least partly responsible for the spread and development of culture.

Living in a world in which individuals, corporations and governments are using every means, fair and foul, to acquire the ideas and gadgets of their competitors, it would seem that borrowing or stealing are the principal methods by which knowledge is diffused. You have only to think of such things as locomotives, automobiles, airplanes, radio, telephone, telegraph, and the rapidity with which these have spread from their point of origin to one country after another, to realize the importance of diffusion in commerce, war, transportation and communication.

In your own home you are in the grip of diffusion from the moment you open your eyes in the morning, as witness Ralph Linton in his *Study of Man*:

"Our solid American citizen awakens in a bed built on a pattern which originated in the Near East but which was modified in Northern Europe before it was transmitted to America. He

throws back covers made from cotton, domesticated in India, or linen, domesticated in the Near East, or wool from sheep, also domesticated in the Near East, or silk, the use of which was discovered in China. All of these materials have been spun and woven by processes invented in the Near East. He slips into his moccasins, invented by Indians of the eastern woodlands, and goes to the bathroom, whose fixtures are a mixture of European and American inventions, both of recent date. He takes off his pajamas, a garment invented in India, and washes with soap invented by the ancient Gauls. He then shaves, a masochistic rite which seems to have been derived from either Sumer or ancient Egypt.

"Returning to the bedroom, he removes his clothes from a chair of southern European type and proceeds to dress. He puts on garments whose form originally derived from the skin clothing of the nomads of the Asiatic steppes, puts on shoes made from skins tanned by a process invented in ancient Egypt and cut to a pattern derived from the classical civilizations of the Mediterranean, and ties around his neck a strip of bright-colored cloth which is a vestigial survival of the shoulder shawls worn by the seventeenth-century Croats. Before going out for breakfast he glances through the window, made of glass invented in Egypt, and if it is raining puts on overshoes made of rubber discovered by the Central American Indians and takes an umbrella, invented in southeastern Asia. Upon his head he puts a hat made of felt, a material invented in the Asiatic steppes.

"On his way to breakfast he stops to buy a paper, paying for it with coins, an ancient Lydian invention. At the restaurant a whole new series of borrowed elements confronts him. His plate is made of a form of pottery invented in China. His knife is of steel, an alloy first made in southern India, his fork a medieval

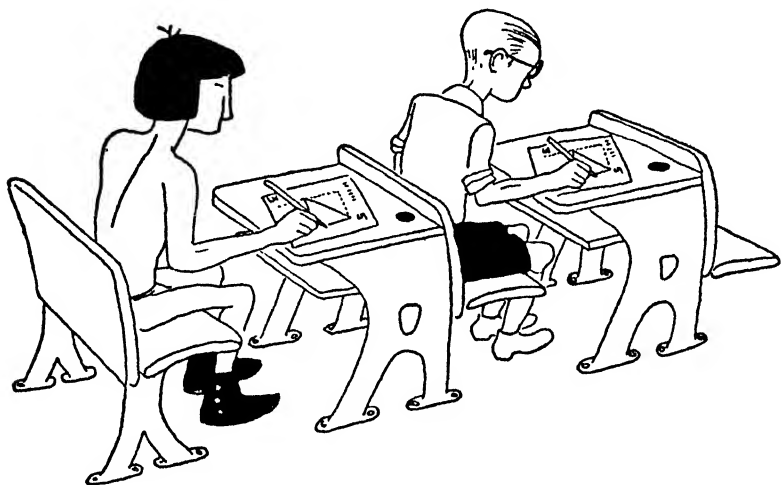
Italian invention, and his spoon a derivative of a Roman original. He begins breakfast with an orange, from the eastern Mediterranean, a cantaloupe from Persia, or perhaps a piece of African watermelon. With this he has coffee, an Abyssinian plant, with cream and sugar. Both the domestication of cows and the idea of milking them originated in the Near East, while sugar was first made in India. After his fruit and first coffee he goes on to waffles, cakes made by a Scandinavian technique from wheat domesticated in Asia Minor. Over these he pours maple syrup, invented by the Indians of the eastern woodlands. As a side dish he may have the egg of a species of bird domesticated in Indo-China, or thin strips of the flesh of an animal domesticated in Eastern Asia which have been salted and smoked by a process developed in northern Europe.

"When our friend has finished eating he settles back to smoke, an American Indian habit, consuming a plant domesticated in Brazil in either a pipe, derived from the Indians of Virginia, or a cigarette, derived from Mexico. If he is hardy enough he may even attempt a cigar, transmitted to us from the Antilles by way of Spain. While smoking he reads the news of the day, imprinted in characters invented by the ancient Semites upon a material invented in China by a process invented in Germany. As he absorbs the accounts of foreign troubles he will, if he is a good conservative citizen, thank a Hebrew deity in an Indo-European language that he is 100 per cent American."

After breakfast, when you send the children to school, you are still dependent upon diffusion, since their education is based entirely on the acquisition of knowledge by diffusion from teacher to pupil, and it is safe to say that if the awarding of degrees depended upon the ability of students to invent, independently, the

answers to their exams, there would be an immediate saving in parchment and red ribbon.

It is even more certain that if two boys, one of them an Indian, should turn in identical answers to an examination, it would be regarded as *prima-facie* evidence that one of them had been cribbing, which, of course, is merely another word for diffusion. The



same schoolmaster, however, who refused to believe that the two boys had framed their answers quite independently of one another, might be required to teach American archaeology to the same two boys. In such a case it would be interesting to hear his explanation as to why their identical results were regarded as cribbing, whereas when their ancestors achieved identical results in olden days it must be accepted as proof of the Psychic Unity of all mankind.

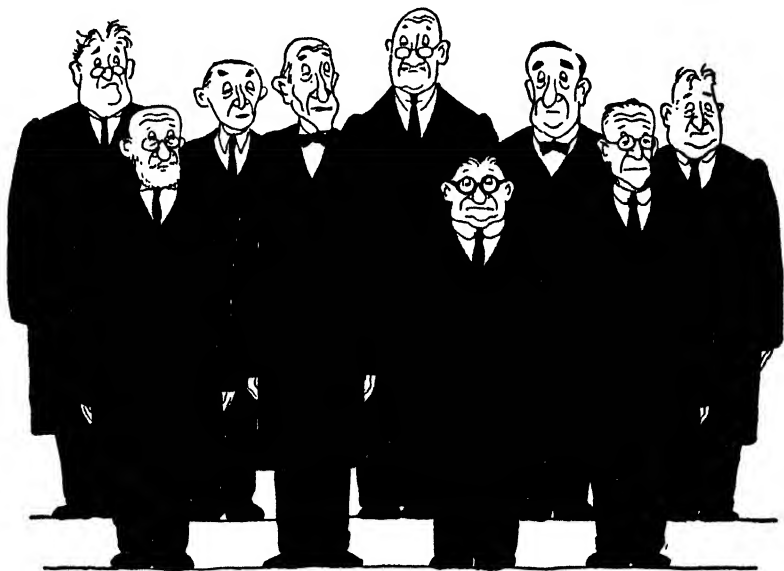
In other words, I believe that diffusion is now, and always has been, the principal factor in the spread of knowledge and the

growth of culture. I propose, therefore, to tell a tale of how I think the Americas were populated and to explain the origins of our native civilizations as the results of the diffusion of traits and ideas from Asia. In some ways it is rather unfortunate that the process of diffusion is so familiar to all of us, and that it seems to provide answers to so many of our problems, since thus it is the one explanation which appears to be obvious to those of us who are not trained anthropologists. As a result the amateur, on the one hand, is apt to be impatient and intolerant of a more conservative point of view, while, on the other, the professional anthropologist hesitates to register approval of the theory—however reasonable it may seem—since, in so doing, he might be misunderstood as sanctioning some of the crackpot ideas with which it has been loaded by enthusiastic amateurs. So, in order to show how fair we mean to be, we will now introduce you to Dr. Phuderick Duddy who, as one of the foremost members of the Old Guard, can speak for the profession with the voice of authority. He will interpolate his objections and comments if we should happen to say anything which, in his opinion, may be open to question.

If you have ever visited a museum of archaeology and talked to the curator, or if you have ever taken a course in any branch of anthropology at any of our universities, you will undoubtedly experience the feeling that you have met Dr. Duddy somewhere, sometime. You have—since our Phuddy Duddy is nothing less than the composite of all the great minds which have governed our anthropological thinking during the last 70 years.

Dr. Duddy is one of the most attractive and lovable of men. He is broad-minded in that he not only admits but insists that the most primitive of men are his equals in intellectual potentialities. He is steadfast in that he has never forsaken an idea once it has

become imbedded. He possesses the faith which has moved mountains to uncover evidence that was not there. And he is a 100 per cent American in his unshakable belief that American Indians not only pulled themselves up by their own bootstraps, but also invented the boots and the straps.



For a little while you are asked to consider a tale of how men and their culture may have come to the Americas from the shores of Asia. There were, however, many different kinds of men and they brought many different kinds of things with them, so it will make it a little easier to understand if we start our tale in the Old Country, long, long ago, and try to form some sort of an idea as to how men came to differ from one another, in both physique and culture, before they came over to the Americas.

Who's Who in the New World

THE NEW World was populated by many different kinds of men, and it will make it easier to identify them as they arrived if we can draw a few distinctions between the various types as they were before they left Asia. It is a very ticklish subject and it is also one in which emotions are easily aroused, so we will tread warily and do our best to please everyone. The way in which we propose to attempt this impossible task is to confine definitions of differences between various types of men to those outward and visible signs which are easily recognized and generally acknowledged, and which leave the inward and the spiritual graces for others to quarrel about. So, if you are at all uncertain as to the physical type to which you belong, here are a few suggestions that may help you in making your choice.

If you should catch a glimpse of yourself in a puddle and should see the reflection of a projecting mouth, no forehead worth mentioning, a protruding ridge or awning over your eyes, a broad, flat nose with a depressed root, wavy, black hair, and chocolate-brown skin, you are probably Australian although you seem to have relatives in every land. Because of generic resemblances these features are all classed as Australoid, even though some branches, such as the Vedda in India and the Ainu in Japan,

may have been living where they are since long before anyone ever set foot in Australia.

For your forefathers you will not have far to go. If you happen to live in Queensland you might look over the skull which was



found in a creek bed near Talgai. The original owner of this skull has been said to have been a representative Australoid, but, as he was rather badly squashed, you might prefer to choose one of the Cohuna fossil skulls down in Victoria; or, if you are still not satisfied, you can claim the Keilor skull, recently discovered near

Melbourne, which will carry you back for 150,000 years or more.

In Java, off to the west, they have also found some of your fossil cousins at a place called Wadjak, and also in the valley of the



Solo River. The Solo man, *homo soloensis*, is a particularly good fellow to claim as a relative since he is said to have been related to the old Neanderthal family which once used to own a good deal of property in Europe and western Asia.

If you stand at less than five feet, if your skin is dark brown, your hair is black and grows in tufts, your nose is flat and broad, your tummy sticks out in front and the rest of you sticks out behind, you have a bulging forehead, or, maybe, no lobes to your ears—then you are one of those groups which in Africa are called Pygmies, and which in Melanesia, Malaya, and the Philippines are known as Negritos; and you can safely claim to belong to one of our oldest families.



If your skin is black, your hair black and woolly, your nose flat and broad, your lips large and everted; if your mouth protrudes and your skull is rather long and narrow but with no pronounced ridge over your eyes; if you have flat feet which shuffle and tap when you hear a drum; if you laugh easily and sing well—you may not be a Pullman porter, but you are certainly Negroid.

For other members of your family, you will, of course, look first to Africa where Negroes have been at home from time immemorial, but, if your tastes run to chicken, roast pig, coconuts and sweet potatoes, you should try Melanesia—from New Guinea east to Fiji. If, however, you prefer a more central point, you will also find strong Negroid strains in India, Burma and Arabia. And do not overlook your highly respectable ancestors from the Grimaldi caves on the French Riviera, of whom Sir Arthur Keith wrote in his *New Discoveries Relating to the Antiquity of Man*:

“We meet with the same ‘negroid’ features amongst members of the Cromagnon race; the deepest and oldest burials in the Aurignacian strata of the Grimaldi cave gave us two such ‘negroids,’ one a woman, the other a youth.”



If your head is noticeably broad in proportion to its length, your hair black and straight and there is not much of it on your

face and body; if your skin is yellowish brown, your cheekbones broad and prominent; your nose broad and concave; your eyes brown, with a fold of skin across the inner corner giving you a slant-eyed appearance; and if your lips are narrow and firm—then you are Mongoloid, and your people kept pretty much to themselves until a few thousand years ago.

It might be a fair guess to suggest that once upon a time, many, many years ago, some of your prehuman ancestors may have wandered up northeastward in Asia and been caught off base when the Himalayas rose up behind them. There they stuck, developing certain physical features—particularly their broad heads—until these features became so ingrained that when at last your ancestors began to filter out and mingle with other people, some of these features were dominant over those less well established.

If you have a head that is rather long in relation to width; a narrow face, with a prominent nose and a pointed chin; a skin sallow to tan; straight, black hair; fine bones; a body, slender in youth but paunchy with advancing age—along the lines of ancient Egyptians and modern Arabs—then you are Mediterranean and a descendant of those people who, at about 5000 B.C., had domesticated pigs, sheep and cattle, who were reaping their crops of wheat and barley, who were living in huts made of mud daubed on sticks or built up of sun-dried bricks, who, in a word, were originating civilization.

One could continue indefinitely describing the various divisions and subdivisions of mankind, but with Pygmies, Australoids, Negroids, Mongoloids and a few Mediterraneans, we have five different types which can easily be distinguished, and these and their blends will be enough to populate the New World. Before leaving this subject of differentiation, however, there are one or two points which are worth bearing in mind. You have

undoubtedly been taught that all modern types of men are varieties of one species—*Homo sapiens*—and although you may sometimes have chuckled over the smugness of the *sapiens* designation



you have probably accepted it as a fact that all living men are brothers. Like most man-made classifications, however, this one has some rather obvious flaws.

There is the Java man, for instance, with his beetling brow and no forehead worth mentioning, who was dug up by Dr. Eugene Dubois, near Trinil, in Java. He was given the name of *Pithecanthropus erectus*, the "ape-man who walked erect," and has been regarded not only as a separate species but even as an entirely different genus from *Sinanthropus pekinensis*, the fossil lady

from the cave of Chou Kou Tien, near Peking. Yet these two ancient fossils resemble each other much more closely than, say, a Pygmy and a Grenadier Guardsman, who are classed as the same species.



If you have a nice smooth brow and a patrician forehead, you are amply justified in refusing to recognize either of these low-brows as family connections. On the other hand, if your brow beetles and your forehead recedes, and your nose is broad with a depressed root, you could equally well insist that you inherited these characteristics from *Pithecanthropus* or *Sinanthropus*, through a long line of Australoid ancestors who shared the same features. All of which poses the question of why the genealogists

who have drawn our family tree should have pushed the ancient low-brows out to the ends of the limbs as withered fruit while they have included the modern low-brows in our *sapiens* family.

This, in turn, raises the problem of how to decide when a human fruit has withered. For reasons which have never been made quite clear, *Pithecanthropus* and *Sinanthropus* have both been shoved aside as collateral branches of the human stem which perished without issue. Yet a good many other fossil skulls, such as Neanderthal, Rhodesian, Wadjak and Solo, have been admitted into the genus *Homo*, but distinguished from *sapiens* as separate species.

This arrangement conveys four rather weighty implications: First, all the existing types of men are members of the same genus and species—*Homo sapiens*. Second, our fossil, sapient matrons preserved the purity of our species by refusing the attentions of these lesser breeds without the law. Third, all of these other rugged individuals died out at just the right time, so that our *sapiens* family has been spared competition with any other genus or species of man. Fourth, having cleared the deck, our *sapiens* ancestors thereupon proceeded to develop all of those many and various features, by means of which the existing races can be distinguished from one another—black to white skins, straight to woolly hair, long to broad skulls, giants and pygmies, and all of the different blood groups.

Stated thus, the scheme does not seem very reasonable, particularly when one realizes that all this must have taken place during a period when the world's population was relatively small, and each crossing of any two diverse types could logically be expected to have resulted in leveling, rather than differentiating, incipient racial types. It also, presumably, must have occurred within the last 50,000 years, since some of the outlawed species,

such as the Neanderthal man, lasted well up into the last glaciation and appear to have had Europe pretty much to themselves.

Today, with a world population of two billion or more, we are trying to break down the racial barriers which admittedly exist and absorb each other in our various melting pots, so that, eventually, we shall all again become a generalized type, but whether this type will still be known as *Homo sapiens* is open to doubt. When it comes to choosing a fossil ancestor for *Homo sapiens* we are faced with another difficulty, since it is fairly certain that we Caucasians, or Nordics, or whites, or whatever else we call ourselves—at any rate the people who draw most of the genealogical trees—would choose the Piltdown-Swanscombe-Galley Hill series of skulls as our *sapiens* ancestors. These are all nice smooth-browed heads with well-developed foreheads and they have all been found in thoroughly respectable surroundings—the Sussex Downs and terraces overlooking the valley of the Thames. It would be rather difficult, however, to use this same series as the ancestral source of all the peoples who possess a heavy brow ridge and receding forehead. It is again almost certain that these Australians, Papuans, Ainus, Vedda and others who might generally be classed as Australoids would claim the *Pithecanthropus Wadjak-Solo* series as the only true-blue *sapiens* line, and you must admit that they would have a fairly good case.

So, since it would probably be impossible to obtain agreement between the champions of the various races, or even between various nationalities, as to which fossil provides the ideal *sapiens* type, we are left with consistent physical differences which are usually regarded as constituting racial characteristics, but with no one fossil to serve as a universal ancestor. Under such circumstances it may be that a theory of multiple origins might serve as

an alternative to the prevailing idea that all existing types of men have evolved from a single source—an ideal *Homo sapiens*.

The actual evidence for multiple origins is a little stronger than that for the single origin, in that we know there are multiple existing types of human beings, regardless of how they became differentiated. But, aside from this, the evidence for the one theory is no better than for the other, since no skeletal remains which could be identified positively as human have been found under conditions which indicate an age greater than the beginning of the Pleistocene, about a million years ago. So, with the admission that *any* theory which is designed to cover man's status prior to a million years ago must be sheer speculation, let us now take the idea of multiple origins to account for the multiple existing types of men, make it as reasonable as we can, and see what happens.

Once upon a time, many millions of years ago, the order of Primates (which, as you undoubtedly already know, includes all of the various lemurs, tarsiers, monkeys, apes and men) was represented by a queer little creature that may have looked somewhat like the modern tarsier which today is found in the Malay Peninsula and the East Indies. If it has momentarily slipped your mind as to what a tarsier looks like, you need only think of a small tuft of fur attached to a pair of spectacles.

The period at which this lonely little tarsiod had the Primate world all to himself was probably near the beginning of the era known as the Tertiary—so-called because it was the third great period of continent building—which consisted of four divisions, the Eocene, Oligocene, Miocene and Pliocene. If you like to be explicit and keep your dates in order, you can set the beginning of the Eocene at about 55,000,000 years ago, the Oligocene at 35,000,000, followed by the Miocene at 19,000,000, then the Pliocene at 7,000,000 and lasting up to 1,000,000 years ago, when the

Pleistocene or ice age began. Some people may argue for a year or two, one way or the other, but you will not be far wrong.

After having been shoved around by great, slimy lizards for millions of years, it was during the Eocene, as islands of grassland and forest replaced the swamps of earlier times, that the mammals took over from the reptiles and our little tarsiod ancestor took to the tall timber. Throughout the remainder of the Eocene and the entire span of the Oligocene, the evolution of mammals proceeded apace. Land areas were increasing in size, and there were vague suggestions of the present continental outlines. Mountain ranges were upthrust: the Pyrenees during the Eocene; the Alps, Himalayas, Rockies and Andes late in the Oligocene or early Miocene. These barriers served further to separate the various groups and types of mammals which were trying out their horns, hoofs, claws, fins or fangs and the relative values of running, leaping, climbing, burrowing or swimming. It was during the Oligocene that the ancestral forms of the cat, dog, rodent, camel, elephant and horse tribes became distinguishable, and it is against such a background that one can see the various Primate families beginning to emerge. By the end of the Oligocene, some 20,000,000 years ago, the lemuroids, tarsiods and anthropoids had become distinct as suborders. As we are reaching the point where it is possible to be a little more definite, I turn to Earnest Hooton in *Up from the Ape*:

"In the Miocene period the great anthropoid stock, common ancestors of the existing great apes and man, came into being. From the common stem the limb leading to the orangutan first diverged. From the great *Dryopithecus-Sivapithecus* group of Miocene apes, sprung, on the one side, the branch which ultimately separated into gorilla and chimpanzee shoots; on the other side of the fork the humanoid trunk begins."

This gives us exactly the information we need, since it shows that the anthropoid trunk of the Primate tree had divided into the ape and human branches during the Miocene, and that the orangutan family had already started on its own career. It should therefore be safe to say that during the Pliocene, beginning some



6,000,000 or 7,000,000 years ago, the various ape families had started to evolve along parallel lines—one strain winding up in Borneo as orangutans, another in Gabon as gorillas, another in the Congo as chimpanzees, and so on.

So far, so good, and nothing has been said which should arouse suspicion in an orthodox mind; but we come to the real crux of the problem when we try to decide what was happening to the

human branch while the apes were splitting up into their various families and going their several ways. From an unorthodox point of view, the suggestion might be advanced that the human branch was dividing into different groups of men in exactly the same way that the ape branch was dividing into different kinds of apes, and that each such human group attained its degree of distinction, depending upon the time at which it separated from the main human stem. The subsequent specialization of each such division would then depend upon the extent of its isolation from other groups during a period when the earth's surface was undergoing changes that facilitated segregation and insulation.

Turning back to the Primates as a whole, it seems that size may be a fair guide as to the sequence of development, since I think it would generally be agreed that all mammals increased markedly in size during the Eocene, Oligocene and Miocene. Having served their purpose as founders of the Primate stock, the diminutive tarsoids, about the size of a rat, separated from the main Primate stem in the Eocene, 55,000,000 to 35,000,000 B.C., and did not thereafter share in the evolution of their collateral descendants. In late Eocene or early Oligocene times, or about 30,000,000 to 40,000,000 years ago, the prototypes of the monkeys, somewhat larger than the tarsiers, were the next to break off from the Primate stem, and again most of them remained more or less static in regard to size. Next to strike out for themselves, in the late Oligocene, about 20,000,000 B.C., were the ancestral gibbons, small apes up to about three feet in height, found today in the jungles of Indo-Malaya. Then, in the Miocene, beginning some 19,000,000 years ago, came Hooton's giant anthropoids, branching into the great apes on the one hand and men on the other. So it looks as if some of our ancestors must have attained to some

sort of human identity before the end of the Miocene, or at about 7,000,000 B.C., and, if you need a little chronological elbowroom, you might even add a million or two.

Although some contrary instances could undoubtedly be cited, the main trend in size seems to be fairly clear, and so suggests that the Pygmy branch of the human stock may have been the first to separate from our family tree. Thereafter these little people became isolated in the various refuge areas to which they dispersed and seem to have remained more or less sufficient unto themselves until recent times.

If this is admitted, then the theory of *Homo sapiens* as the progenitor of all the existing races can be filed away in the limbo of forgotten things, since the problem of racial origins would then become a question as to when, and how often, other types of men had branched off from the human stem. As to when some of these events began to take place, one might suggest that if the apes had already become differentiated in the Pliocene, it is probable that at the same time some human types were also beginning to diverge one from another, since most of us would be willing to agree that there is as much difference between any kind of man and any kind of ape as there is between any two kinds of ape.

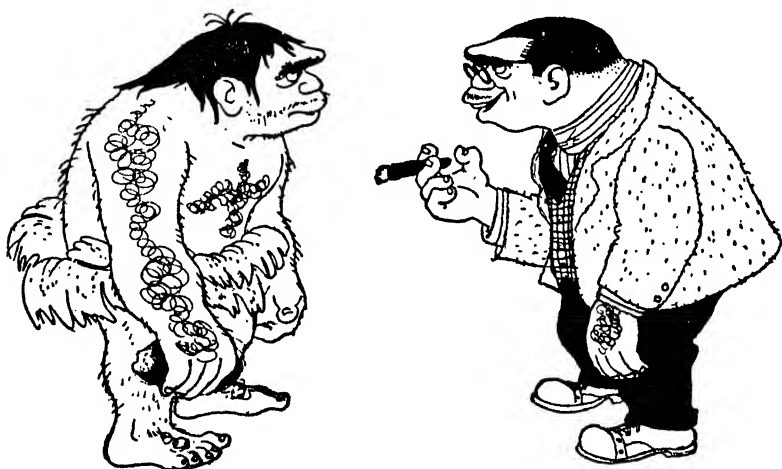
In other words, we are suggesting that rather than thinking of *Homo sapiens* as a sort of superman who outlasted all other human species and sired all of the various existing races, it might be a good idea if we should set the beginning of the differentiation of these human types back to the Pliocene, or even back to the Miocene, and regard them as having evolved since then along parallel lines, instead of trying to derive so many and such different existing races from the one single source of *Homo sapiens*.

Taking one of these suggested lines, one might say that *Pithecanthropus* begat Solo; that Solo begat Wadjak; and that Wadjak

(with a little Negrito help) begat the ancestors of the modern Australian, who, for want of a better name, have been called Australoid, meaning, in this case,

*Something old and something new,
Something borrowed—like me and you—
Beetling brows and chocolate hue,
A dash of white, and hairy, too.*

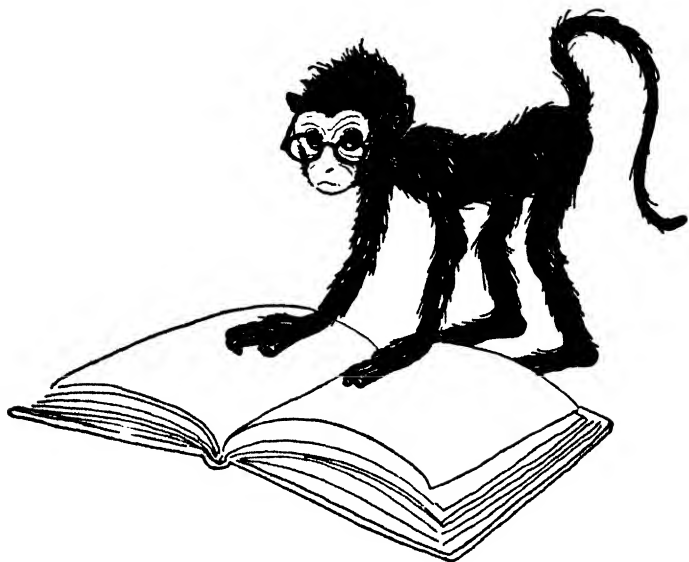
Or, going farther afield, it might be said that some of those children of *Pithecanthropus* who strayed off to the westward might have produced the Heidelberg type of man, who in turn gave rise



to Neanderthal, some of whose characteristic features can still be found in some modern individuals. The next time you go to church or to your club you can amuse yourself by looking over your friends for a beetling brow ridge, a receding forehead, a broad, flat nose with a depressed root, or a protruding muzzle, and when you find what you are looking for, give your imagina-

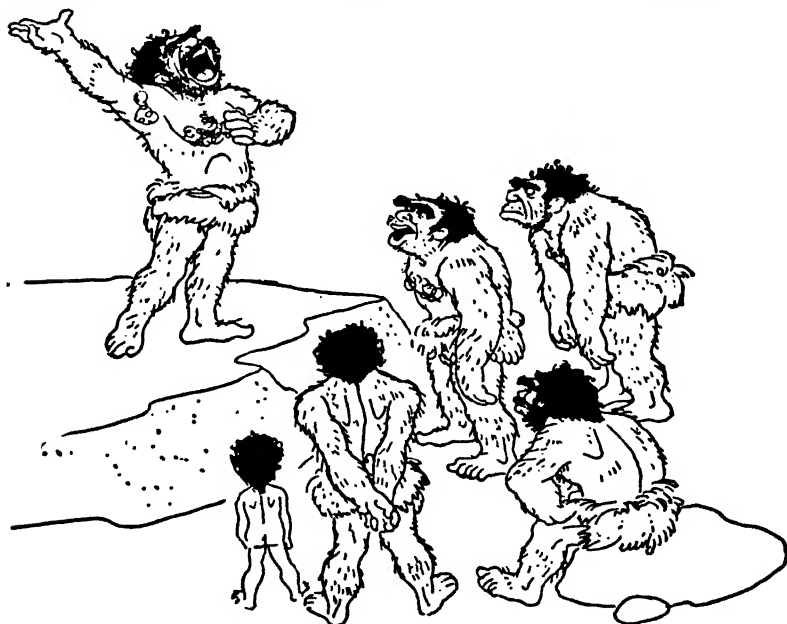
tion a little rein and try to visualize how your friend and his family might have looked, what they would have been wearing and doing, on a Sunday morning 50,000 years ago.

However and whenever the human family originated and dispersed, by the end of the Pliocene (1,000,000 B.C.) the progenitors of all of our existing types were going their various ways, and it is time for us to consider some of the groups in eastern Asia, and the conditions which may have caused a few of them to move into North America.



Snow, Sleet, Colder

WITH THE ending of the Pliocene, we enter the Pleistocene, or ice age, about a million years ago. Men were then well along the trail which was eventually to lead up to what we recognize as civilization. The germ of



crooning and of political and after-dinner speeches had already lodged in the throats of men—and we can now say *men* advisedly,

since it is to be supposed that they were the first to speak so that they could tell women what they should do, and how to do it. Fire was brought under control; probably first for warmth, later for cooking.

With women doing all of the cavework, cooking, chewing skins and bringing up children, men were free to do the things



at which they have always excelled—scribbling pictures on walls, swinging sticks or clubs, throwing stones, and ganging together to talk, to gamble, to plan how to kill animals and other men. The essential pattern of life in the twentieth century was being cast in the mold 1,000,000 years ago.

And then, slowly and imperceptibly, the climate began to change. The difference from year to year was no greater than we often see today between a warm and a cold summer. No single individual could have told his children that it was colder than when he was a boy, but the women may have begun to pester their men for the new styles in fur coats. During the course of

many thousands of years the change was gradual but progressive, and little by little men and animals moved toward the equator as the arctic and antarctic ice formed and spread.

Four times during the Pleistocene the ice advanced and retreated, with long intervals between each pair of glaciations. There is no good reason for you to clutter up your mind with the names of these periods, particularly since each one is known by different names, depending upon whether it occurred in North America, the Alps or Scandinavia. The only periods with which we are now concerned were the Sangamon interglacial and the Wisconsin glaciation. The Sangamon may have begun as far back as 250,000 years ago, but a few thousand years, more or less, would make no difference to our tale. We are now chiefly interested in the ending of this interglacial stage, when the summer temperatures dropped low enough to prevent the melting of each winter's snow and ice, and the ice sheets of the Wisconsin glaciation began to form and spread. This began about 100,000 years ago and, from beginning to end, lasted about 75,000 years with one or two breaks or pauses when the ice receded in some areas and advanced in others. Strangely enough, much of Alaska was ice free during the Wisconsin glaciation because of the lack of rain and snow. Canada was completely covered by an ice sheet and some of the largest glaciers are said to have been as much as 10,000 feet in thickness. The southern boundary of the sheet followed the coast of New England to New York, then went to St. Louis, northwest past Omaha to the Canadian border, then west to Seattle; and, in addition, there were local glaciers on all of the high mountains south of the main ice sheet.

Postglacial time began about 25,000 years ago when the ice began to recede, but it is just as well to realize that it did not disappear overnight. It takes a good many thousands of years to melt

a cake of ice 10,000 feet in thickness, and, as a matter of fact, some of it is still left in Greenland and in the mountains of western Canada.

Now, it is important to realize that during the early part of the Pleistocene, when the ice advanced and covered large areas of Europe, Asia and North America, there was no crowding as far as human beings were concerned, since in those days there were very few human beings to crowd. Mothers and babies must have had a pretty tough time, and it was little short of a miracle that any infants pulled through to childhood. Those who did had nothing more than their hands and teeth, a stick or a stone to protect themselves against the beasts of prey which had no reason to fear them, not to mention man's well-known inhumanity to man. And yet, as interglacials followed periods of glaciation, there was a slow progress in culture. Men shaped tools by banging lumps of flint together and, occasionally hitting their fingers, they undoubtedly increased the range of their vocabulary and their power of expression. Women improved their cooking and began looking farther afield for rib roasts and tenderloins. To the heavy brow-ridged, man-eating sons of the Java and Peking men, the steatopygous * Pygmies must have seemed particularly luscious and the poor little devils were chased literally to the ends of the earth.

To realize what is meant by the ends of the earth you should follow Griffith Taylor's advice in his *Environment and Race* and imagine yourself as poised above the North Pole. Then, looking down and around the curve of the earth, you will see that the land masses form three long peninsulas—an African, an Asiatic and an American. From your vantage point, the people down

* See any good dictionary.

near the tips will all appear to be small and undersized, and, strangely enough, they are.

Down on the African Peninsula, from the Congo to the Cape, are various types of dwarfed peoples. In the forests of the Congo



are the Akka, Wambutti and other Pygmies averaging about four feet in height, and a little to the south, in the Kalahari Desert, are the Bushmen—only an inch or two taller.

Off the extreme southeastern tip of Asia were the Tasmanians with a height of about 65 inches, until they were killed off in 1879.

Down at the southern end of South America are the Yahgan and Alikuluf, averaging 62 inches.

In between these three great peninsulas, but always on islands or in jungles which afforded some refuge from their enemies, are other dwarfed peoples sometimes called Negritos, sometimes Negrillos, sometimes Pygmies.

On the Andaman Islands, in the Bay of Bengal, are the Andamanese with a height up to 58 inches.

A little to the east, in the dense jungles of the southern half of the Malay Peninsula are the Semang, closely related to the Andamanese and of about the same height.

Still farther to the east, on New Guinea, are the Mafulu in the Mekeo district, also about 58 inches; the Tapiro Pygmies in the Nassau Range are slightly shorter at about 56 inches, with some only 52 inches.

Turning north to the Philippines, there are the Aëtas in the mountains of Luzon with an average height of 57 inches, but with many considerably below this figure.

Besides the dwarfishness which is the most obvious physical trait to suggest that all of these far-flung groups may be linked in a common ancestry, the Pygmy-Negrito-Negrillo peoples share various other features to a greater or less degree. Their skin color, for instance, is a dark chocolate brown deepening to black. Their hair is black, sometimes with a rusty tinge, and the texture is frizzly, often growing in tight spirals. Their feet are large and clumsy. Their noses are broad and flat. The upper lip is convex. Their jaws protrude and their foreheads bulge.

Most of these traits are found in combination among the Andamanese and the Semang and many in the Mafulu and Tapiro of New Guinea, which suggests that southeastern Asia may have been the original center from which the type dispersed. As distance from the center increases, however, the characteristic

Pygmy features lose some of their definition, which is not to be wondered at when one considers how long the outlying groups of these little people have been separated from one another. And, speaking of age, these diminutive people cannot well be laughed off as examples of recent degeneration. Hooton recognizes them in South Africa at a time which he places as at least 15,000 years ago, hunting game with their little bows and stone-tipped arrows. Greater antiquity might be claimed if one is willing to recognize any connection between the Magdalenian drawings in the cave of Altamira, and others near by in the Pyrenees, which are often very suggestive of those in South Africa attributed to the ancestors of the Bushmen. Other intimations of an old underlying Pygmy strain in Europe are to be found in the Neolithic remains in Switzerland, not improbably the source of the local legends of dwarfs and gnomes, and also in the prodigious bust, bustles, and thighs of the so-called Willendorf Venus, from the Aurignacian period in Austria, which would be hard to beat as the Pygmy ideal of bodily perfection. It is interesting and significant to note, in this connection, that the fatty accumulations, so well exemplified on the Willendorf statuette, are found at their best on Bushmen and Hottentot ladies in South Africa, according to Hooton, although Schapera has illustrated some generous curves on men of the Auni tribe, in the Kalahari desert of South Africa. Judging from their silhouettes, I doubt if a Bushman girl could pick out a dress in any of our "Misses—Ready-to-wear" departments and walk off with it without a good many alterations.

What is really remarkable is that they have retained so many traits in common, but, although these are significant in suggesting that these widely scattered groups may be interrelated, they

can all be tied a little closer by adding some of the characteristic things which they made and did or, rather, which they failed to make or do.

I doubt if it would be possible to select any one artifact and show that it is or has been a part of the cultural kit of all of the various Pygmy groups, and unless this could be done it would be futile to claim that any one thing was a pure Pygmy product. The tools and weapons which they have been known to use are invariably to be found amongst adjacent tribes. When, therefore, the Mafulu are found to be using polished celts which no other Pygmy group possesses, and when it is known that the Mafulu are surrounded by nonrelated tribes who also use polished celts, it could hardly be claimed that the Mafulu were the inventors of the celt and that this type of ax must be regarded as a pure Pygmy product. The only trait which runs through all the Pygmy peoples is that they all seem to have been consistent in leaving undone those things which they ought to have done.

There is some doubt, for instance, that any of the Pygmies knew anything about agriculture.

If the Andamanese ever knew how, according to Keane they "seem to have long lost the art of making fire."

The nearest that any of them came to building a house was a lean-to or windbreak, open in front and at the ends.

None of them seems to have cared much about ceremonials, and there was consequently little incentive to devise any new styles in dresses for their women or haberdashery for the men. Most of the time they wore nothing, but, when they wanted to dress up, Sollas tells that the Tasmanian ladies "adorned themselves with chaplets of flowers or bright berries, and with fillets of Wallaby or Kangaroo skin, worn sometimes under the knee, sometimes around the wrist or ankle; the men, especially when

young, were also careful of their personal appearance—a fully dressed young man wore a necklace of spiral shells and a number of Kangaroos' teeth fastened in his woolly hair."

With modern Pygmies having no house worthy of the name, no agriculture, no clothes and no worship, and with their possessions explained away as having been borrowed from their neighbors, one can be excused for wondering what they could have had in the way of culture 50,000 to 100,000 years ago.

Under the circumstances you may well ask how these diminutive people were able to reach many of the places where they have since been found—the Andaman Islands, Tasmania, New Guinea and the Philippines—when boats may still have been unknown.

Here's how—



Australoids in Australia

SOMETIME about 100,000 years ago the last and the longest glaciation of the Pleistocene began to form in North America, where it is known as the Wisconsin; in Europe it became the Würm, and in Asia the Russians may call it by some other name. By whatever name it is known, this glaciation covered a large part of the northern continents above about 45 degrees north latitude. To the south of 45 degrees and in the Southern Hemisphere glaciers also formed in the high altitudes, and there must have been an extension of the antarctic ice; but the southern continents were not ice-covered, as the tip of South America and a section of the South Island of New Zealand are the only land masses which lie within 45 degrees of the South Pole.

The ice formed and spread, and as the great sheets increased in area and depth, more and more moisture was removed from circulation as it became solidified into ice. The results were of definite and far-reaching importance to our early ancestors in their comings and goings. The reason for this was that our planet, Earth, has no means of adding to its supply of moisture, and so, when a large part of the available supply was impounded in the ice masses which were forming on the continents, the level of the sea was lowered as much as 300 feet below the present surface.

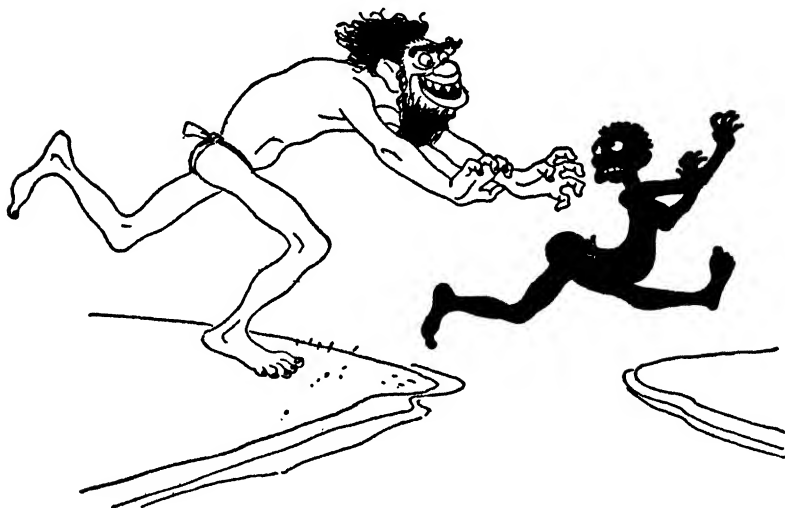
As a result, many tracts of land which had been islands were

joined to mainlands, and many of the straits which today would be impassable to primitive men were reduced to narrow channels. An excellent example of this can be seen in the Torres Strait which now separates New Guinea from Australia by 100 miles of open water, but which, during the last glaciation, disappeared completely as the sea level dropped, leaving between these two great islands a broad land connection over which men and animals could pass dry-shod. A little off to the west, however, there was a deep channel, near modern Timor, which separated the Australian-New Guinea land mass from the mainland of Asia. And, although this channel could easily be crossed by men on rafts or coracles, it was wide enough to prevent any mammals from reaching Australia or New Guinea—except rats and dogs, both of which were carried in by men.

The Wisconsin glaciation reached its maximum about 50,000 years ago, and then for about 25,000 years the conditions fluctuated with pauses, advances and recessions of the ice, so that for a long time the sea remained at or near its low ebb and many land bridges were exposed. It was at this time—from 100,000 to 25,000 years ago—that Sumatra and Borneo were joined by the Sunda Bridge, Ceylon was connected to the tip of southern India, Tasmania was united to Australia, and Asia and North America were joined by the Bering Isthmus which, in those days, rose as much as 100 feet above water.

It was during this period of lowered sea level, in other words during the last glaciation, that the Pygmy ancestors of the modern Tasmanians managed to cross the Timor Channel, went through Australia on a high run, and reached Tasmania, one jump ahead of the beetle-browed, man-eating Australoids who, as we have already explained, were the ancestors of the modern Australian blackfellows.

Besides their women and children, these Australoid men were accompanied by their dogs—a fact which is worth mentioning, as dogs, of course, are mammals and so were not native to Australia, where the local fauna never evolved beyond the mar-



supial stage. Since the fossil bones of such dogs have been found in Australia in association with giant Pleistocene marsupials, they provide an additional time check on the period when they and their masters reached Australia. It is also rather significant that the Australian wild dogs, or dingoes, are said to be closely related to pariahs, the native dogs of India, which would suggest southern Asia as their point of departure.

The time at which the Australoids and their dogs reached Australia is therefore well established as not less than 25,000 years ago, and probably a good deal more, since it was at about this time that the ice began to recede, and, as the melting progressed, the sea level rose. Land bridges were submerged and

straits were widened, so increasing the difficulties and dangers of island hopping.

With the Australoids thus sealed off in Australia, we can now indulge in a little speculation as to some of their possessions and some of the things which were done by these fossil men of long ago.

For weapons they used wooden darts, six to nine feet in length, which were hurled by means of a spear thrower. In case you should ever need to independently invent such an apparatus, this is how to go about it: First, take a straight branch of hardwood, two to three feet long and about two inches in diameter. Grind this down on opposite sides until you have a thin board about half an inch thick. Round off the rough edges at one end and cut out two notches about six inches from this end as a grip for your first and second fingers. Taper it toward the other end, beginning at the finger notches, and attach a raised spur at the end of the taper, or, if you prefer, cut a groove in the upper side of the board and leave a projecting spur at the end of the groove. A good spur can be made by knocking out a tooth, preferably a bicuspid, and attaching it in the right position with some wax and string.

Presuming that you already know how to make nice straight darts with foreshafts and flint points take each dart and carve out a cup in the end of the shaft.

Now fit your fingers into the notches and grip the spear thrower with the spur on the top side. Engage the cupped end of a dart with the spur so that the dart lies flat along the handle between your first and second fingers, or, if this feels clumsy, steady the dart with your left hand.

When you have followed all of these instructions and are ready to test your skill, make your cast with an overarm motion, just as

in throwing a stone. Then, if all goes well, you may be able to hit the broad side of a barn at thirty paces.

When you have become adept you will want to add some of the refinements, such as wrapping a string on the grip to prevent your hand from slipping, or adjusting the balance of your thrower by binding on a stone weight at the right place, or tying streamers to your darts to steady their flight—or, if you wish



merely to stun your prey, removing the flint point in the foreshaft and substituting a thing known as a bunt point—a cylinder of wood about an inch in diameter and four or five inches long with one end whittled down to fit in place of a foreshaft.

So much for the spear thrower. Now let's take their bull-roarers.

A bull-roarer is a simple thing to make, and the only part of it which is at all difficult to understand is why anyone should have wanted such a contraption in the first place. To make one, take a slab of hardwood about 15 inches long and 3 or 4 inches wide.

Whittle down each end to a point and grind off the upper and lower surfaces until you have a long, narrow, flounder-shaped blade about a quarter of an inch thick in the middle and sharply beveled around the edges. Drill a hole at one end. Attach a piece of string about six feet long and twirl the blade around your head. It will start humming as it begins to vibrate, and the faster you twirl the more it will roar. To make the string you can spin human hair or twist thin strips of opossum fur. If no opossums, use a rabbit.

A curved, wooden blade was also used for throwing at small game. This throwing stick was a flat strip of wood two to three feet in length, two or three inches wide in the middle with a slight taper toward the ends, about half an inch thick, slightly curved, and marked by parallel grooves evenly spaced along the length of the curve. When thrown, it did not describe a circle and return to the sender, from which you will realize that I am not trying to describe the thing which you know as a boomerang and which was a later development of the curved throwing stick.

Night and day, from birth to death, the things which these people made and did were governed to a greater or less extent by their system of totemism. In simple terms, a totem is an object—animal, vegetable or mineral—with which individuals assume actual relationship and which constitutes the symbol or totem of the clan or group sharing such relationship. Some of the customs connected with the ceremonies of some of these clans were rather surprising as, for instance, the ground paintings, consisting of elaborate designs carried out in yellow, black, red and white sands and powdered clays. Other customs were peculiar because of the pain and inconvenience which resulted, such as the amputation of finger joints, and other forms of self-mutilation—knocking out teeth in connection with initiation rites or cutting the skin

with flint knives and rubbing ashes into the wounds to produce raised scars.

It would undoubtedly be possible to add many other items to this list, but you are probably beginning to wonder about some of those which have already been mentioned, since many of them were obviously perishable. Ground paintings may have



been intentionally destroyed by the Medicine Men the same day they were made—as in modern practice—and such things as wooden objects and strings made of human hair soon decay and disappear. So you are amply justified in asking how these things can be attributed to a people of many thousand years ago.

It works out something like this—

Australoids—Here, There and Everywhere

TAKING THE Talgai skull as a fair example of an ancient Australoid and waiving all deductions and speculations, we actually possess very little knowledge of his culture, and, of course, there is no trace whatever of his intangible or perishable traits after the passage of so many years. The available evidence consists of a skull which was found at Talgai, Queensland, embedded in a deposit of the Pleistocene Age, associated with the bones of a dingo and several extinct marsupials. Of the culture which could be attributed to the original owner of the Talgai skull practically nothing is known.

Now, with this very meager amount of material as a foundation, let us see how much can be built.

First, the Talgai is one of a number of fossil skulls all of which share certain distinct and characteristic features. Although often widely separated by time or space or both, the Java, Solo, Wadjak and Talgai skulls represent stages in the evolution of a people who once occupied eastern Asia and who have survived up to the present day with very little change as Australians; with some admixture of Negrito blood as Papuans in Melanesia; and with a good deal of various mixtures as Ainus in Japan. From the fact that so many of the features of the ancestral fossils can still be found in the Australians the type has come to be known as Aus-

traloid, but it will be well to remember that people of this type were once widely distributed, and when you hear someone speak of the Vedda in India as being Australoid it does not mean that the Vedda reached India from Australia, since it is much more likely that the migration was the other way around.

Second, the Talgai skull was enough like that of a modern blackfellow to serve as an Australoid ancestor.

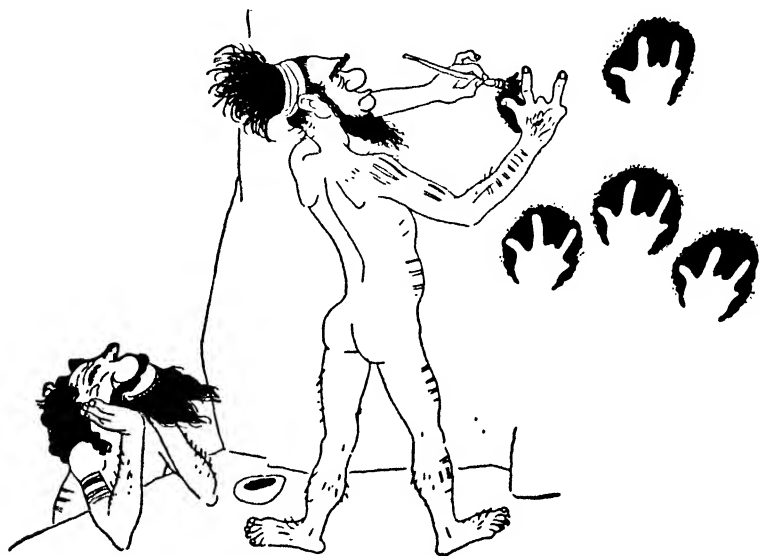
Third, the Talgai skull was found under geological and palaeontological conditions which indicate that people of this type had reached Australia *not less* than 25,000 years ago, when land bridges were exposed which made such a migration possible for a people who, in those days, knew little about boats.

Fourth, each of the things which were mentioned above as having been made, used or done by these ancestral Australoids actually are known to have been made, used and done by their modern Australian descendants.

Fifth, some of these things can be shown to have been in use in early times as, for instance, spear throwers and bull-roarers in the Magdalenian culture in France some 12,000 years ago, or throwing sticks in the Ertebolle culture in Denmark and also in early Egypt, or a flint industry which is said to have been in the style of the Aurignacian culture of 25,000 years ago. But these are all merely suggestive of a hazy outline reaching far back into antiquity.

Sixth, a definite picture takes form when we begin to build up a composite of the various things which were made and done in that certain area lying between the coast of southern California and the gulf coast of Texas. Beginning with those things which can be assigned to early times through having been found in geological and palaeontological associations or in caves showing ancient deposits, there are a flint industry which can best be de-

scribed as Aurignacian in style; spear throwers of the same dimensions as those used in Australia, tapered, with finger notches and balance weights; darts with foreshafts, with flint points for piercing and bunt points for stunning; bull-roarers from caves, still used throughout the area; string found in the rubbish of



cave deposits, made by spinning human hair, also of twisted rabbit fur; curved throwing sticks with parallel grooves, found in caves from California to Texas and in use today among many tribes throughout the region; totemism, known to prevail throughout the areas as of today, and ancient pictographs suggesting clan symbols indicating that the institution was rooted in antiquity; amputation of finger joints, shown in old pictographs, particularly in stenciled rock paintings where the outline shows fingers which were artificially shortened; ground paintings made with colored sands, important in the ceremonies of tribes in

southern California and the ancient Pueblos of the Southwest.

Seventh, many of these traits can be linked to people of a certain physical type whose heads were long and narrow and whose faces were characterized by a beetling brow ridge, accentuated by a depressed nasal root, a broad nose, and a projecting jaw. It was a type which once was widely distributed in southern North America from the coast of southern California to eastern Texas. In South America the same type has been found in association with extinct fauna at Punin and Paltacalo in Ecuador, in the Lagoa Santa caves of eastern Brazil, and as a persisting factor in modern tribes in the southern half of the continent.

In describing the skull from Punin, Sullivan and Hellman, who found it, expressed the opinion that the type was Australoid. Commenting on this opinion, Sir Arthur Keith wrote:

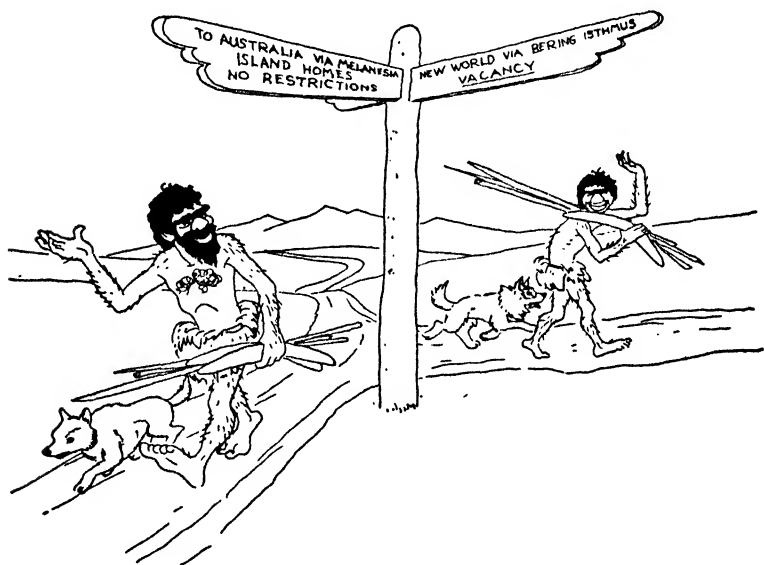
"Both anthropologists were struck by its resemblance to the skulls of native women of Australia. I agree with them; the points of resemblance are too numerous to permit us to suppose that the skull could be a sport produced by an American Indian parentage. . . . This discovery at Punin does compel us to look into the possibility of a Pleistocene invasion of America by an Australoid people."

Which is precisely what we are doing.

To account for a situation of this kind, there are three possible explanations:

First, if you are one of those simple folk who believe what they see until it can be shown to be something else, then this situation leaves nothing to be desired. Here are two groups of people separated in time by 25,000 years or more and in space by 7000 miles of open water, who look like one another and who made and did many of the same things. To the simple mind it

seems obvious that these two groups look like each other because they were once derived from the same stock, and that they made and did the same things in the same way because they once shared the same knowledge. It therefore only remains to show how, where and when they became separated and went their respective ways, each group taking the things with them which they had once shared in common.



Here again the simple solution would be to accept the fact that up to the last glaciation there used to be a number of these beetle-browed fellows scattered along the coasts of eastern Asia. Some of the more southerly groups, with a taste for barbecued Pygmy, had hunted off to the southward to the Isles of Spice and Melanesia, some of them finally ending up in Australia, although others settled down in Melanesia to wait until they should become Papuans.

The more northerly groups, having developed a taste for woolly mammoth, musk ox and reindeer, gradually worked their way northward along the foot of the ice sheet, and one day, pursuing some of these beasts along a neck of land, they unknowingly found themselves wandering into a new world where men had never before set foot.

We say that one of these bands may have been the first people to reach North America, but this opportunity cannot be allowed to pass without recognizing a number of rather vague indications which suggest that some people may have entered the New World at an earlier time than is generally regarded as worthy of consideration.

One such incident was the discovery of flint tools in the so-called Durst silts near Abilene, Texas, which have been said to indicate that someone had spent a week end near by during the Sangamon interglacial, some 70,000 years ago. The flints did not possess much character, it is true, but, even if they are dismissed as rejects, they presumably were messed up by men before they were rejected.

A combination which poses a very pretty problem is that of the Yahgan on Tierra del Fuego. Their status, even today after centuries of contact with taller and more advanced peoples, is surprisingly low. In size they average only about five feet, with some individuals down to 56 inches. They come nearer to living on the ragged edge of nothing than any other known tribe in North or South America. And their choice of the southernmost islands of the archipelago lying off the tip of South America would be hard to equal as a refuge area.

In addition to these two specific instances which would be rather difficult to fit into any orthodox scheme to account for the populating of the Americas, there are hazy suggestions of queer

faces and traits which crop out occasionally along the eastern seaboard and other out-of-the-way places; nothing that can be pinned down, but just enough to make one wonder if there may not have been a few Pygmy groups who strayed over here long, long ago and who were pushed off to the edges and the ends when the Australoid tide flowed in.

Having put this little problem on ice for future consideration, we can now return to our Australoids of whom it can at least be said that they formed the first real *migration*, even if they may not have been the first individuals actually to set foot on our soil.

Now, regardless of how you may feel about the suggested common origin of these two loose Australoid ends, I am sure that we can all agree that the men and women who moved south to Australia never again laid eyes on those who drifted over into the New World, and that any subsequent connection between these widely separated groups was quite impossible. Therefore, when we find the remains of a beetle-browed people in the region lying between southern California and the gulf coast of Texas, which include a long list of things also to be found among a beetle-browed people in Australia, it is clear to the simple-minded diffusionist that these two groups of people must have shared these features, possessions and customs before they separated.

To the individual who subscribes to the principle of "confusion," as opposed to that of "diffusion," the explanation that these two groups once shared the same heritage would have little to offer. The "confusionist" would undoubtedly claim that it is ridiculous to say that two groups of people could retain the same complex of culture for 25,000 years or more, to which the "diffusionist" would reply by drawing attention to the fact that Stone Age peoples went for over 100,000 years without changing the form of their tools, and that many Pygmy groups today have little

more than they started with. This would carry little weight with the confusionist, however, and so we come to his explanation.

Here are two groups of people on opposite sides of the world, who admittedly looked like one another and who made and did the same things. There has been no connection between them for 25,000 years or more, and it is not now possible to identify the intermediate stages of their wanderings or trace the remains of their passage. It is necessary, therefore, to accept the explanation that these two groups invented exactly the same things, entirely independently of one another and regardless of the differences in their environments. Then, presumably, being possessed of the same tools and customs, they lived the same kind of life and so came to look like one another.

The third possible explanation would be a compromise, intended to explain the duplication of some of these traits as the result of diffusion and others as having been invented independently. Like most compromises, this would fail to appease the irreconcilables of either the first or second extremes which have been cited. The confusionist would say that both time and space deny the possibility of any connection whatever and would insist that each duplication was the result of an identical response to an identical need. The diffusionist would want to know how one is going to pick and choose between those traits which were diffused and those which were invented independently, and so would stress the duplication of both the physical and the cultural features as *prima-facie* evidence that the two groups had once shared a common physical ancestry and the same cultural assemblage.

In other words, there can be no satisfactory compromise, and it all boils down to the question which you must settle for yourself. Did these men of long ago develop their culture by sharing and


borrowing the various traits which composed each complex? Or did they independently invent each and every item and so attain duplication? If you prefer the latter alternative, you can have the added fun of thinking up an explanation as to why other groups, in other parts of the world, did not also invent the same combination of traits and so also come to look alike.

To come back to our two groups, we can now leave the Australian *Australoids* and turn our attention to the other group of *Australoids* who preferred mammoths to pygmies, and who were groping their way into a new world. At this point it will repay you to pause for a few moments, close your eyes, and try to visualize these primitive men and women as they crossed what was then the Bering Isthmus, with two great continents ahead of them, wherein, as Trevelyan says, "they hunted, a terror to its four-footed inhabitants and themselves afraid."






First Migration
25,000 B.C. to 15,000 B.C.



Australoid

 Austratoid

The First Migration

AUSTRALOIDS IN AMERICA

WHEN WE say that men entered North America about 25,000 years ago, the time is merely a figure of speech to give people something to argue about. It does not make much difference, as far as the end results are concerned, whether it was 5000 years earlier or later. If, however, you are one of those individuals who craves exactitude and who can only visualize history as a long string of dates, you can try to work out the method by which Dr. Lightfoot was able to determine, in 1654 that man was created at 9:00 A.M., October 26, 4004 B.C., and then apply the same method to man's first arrival in North America. Incidentally, if you can decipher Dr. Lightfoot's code please let us know, as we have always been curious as to how he did it.

Aside from the actual year, which after all is of no more importance than the day of the month or the time of day, the things which we really want to know are what sort of people they were, where they went, what their surroundings were like, and what they did in those days of long ago.

First, as to their appearance:

It will come as something of a shock to those who have been accustomed to thinking of the "American Indian" as a distinct racial type to learn that the earliest migration was made up of people who bore no resemblance whatever to the hook-nosed,



broad-faced, broad-headed, Mongoloid redskin with whom you are familiar. In all probability the idea that all American Indians conformed to a certain type and, therefore, constituted a "race," was conceived in the nineteenth century when Dr. Phuddy Duddy went shopping for his tobacco. In those days every store where tobacco was sold had an American Indian on a pedestal. They were all identical as if cast in the same mold—one hand shading the eyes, a bunch of cigars in the other. One thrills with awe at the shattering effect upon our anthropology which might have resulted if some tobacco dealer had dared to

defy convention and had shown a statue of an Indian as he really was instead of the stereotyped idea of what he ought to have been.

This first migration was not made up of cigar-store Indians, nor were they of the type which you have seen on the buffalo nickel or in pictures by Remington. These first families had broad flat noses, long, narrow faces and heads, beetling brows, receding foreheads and protruding muzzles, and they are best described as Australoid.

Of course, this does not mean that they



came from Australia but simply, as we have said above, that they sprang from the same stock as those people who moved down into Australia. Skulls from early sites in southern California, southwestern Colorado, southern Arizona, the Texas gulf coast. Punin and Paltacalo in Ecuador, and Lagoa Santa in eastern Brazil, all show characteristics which link these various instances together and point to a common ancestry with other Australoid peoples, as do also certain vestigial traces in some modern people, such as the Pericu of Lower California, the Seri on nearby Tiburón Island, and various tribes in Central and South America.

This distribution in the New World of a people who show family resemblances to those in Australia will serve as an illustration of a general principle which is of primary importance to an understanding of the mechanics of human and cultural diffusion.

When, for instance, you find a group of people in Mexico City who wear mantillas, click castanets and dance the fandango, and a group in Buenos Aires who do the same things, it would, of course, be silly to say that the Mexican people must have come from Buenos Aires, or vice versa, since it is much more likely that both groups originally came from Spain.

In the same way, but harking back to prehistoric time, when you find ancient skulls with features which resemble those of Australians, it is not necessary to jump to the conclusion that they came from Australia, or vice versa. It simply means that they once shared a common ancestry, even if you don't know the exact place where the ancestors lived. In this case, somewhere in eastern Asia is a midway point and the best logical guess, particularly as the same types of men, both ancient and modern, are found in eastern Asia and on the islands off the coast.

Now as to the way by which these people entered the New World, and where they went:

It was a simple matter in those days to walk across the Bering Isthmus, but once arrived in the New World the newcomers faced a choice. Some may have gone upstream following the Yukon, but they could not have gone far before they would have been stopped by the ice sheet which covered the higher country of the interior, and they would then have had to wait until about 15,000 B.C. for a corridor to open.

It is much more probable that most of them drifted south following the coast line. The hunting would have been good and there was plenty of fresh water and firewood. It is also quite probable that traveling along the coast of western Canada 25,000 years



ago may have been a good deal easier than it is today, since the lowered sea level must have exposed some sort of a coast line where today the mountains come down to the sea. These early migrants may also have had some sort of simple raft, coracle or

canoe, as suggested by their choice of coastal sites both here and in Asia.

Fortunately for us, as archaeologists, they were very careless about cleaning up after their meals of sea food, and at various places from Vancouver southward they littered their camp sites with great heaps of oyster, clam and abalone shells.

How long the migration continued nobody knows, but it must have been for a long time, as there are a great many sites along the coast of California and farther south along the west coast of Mexico. Many of them worked their way down to South America—to Brazil where they occupied the Lagoa Santa caves, to Ecuador where they have been found at Punin and in the Palta-caló caves, and as far south as Chile.

Beside those who followed the coast southward, a large number swung off as the country opened out to the east, some settling down in western Arizona along the Colorado River, some in southeastern Arizona, some in western Texas in the caves of the Big Bend country, some as far as the Texas gulf coast and up into central Texas.

In selecting these regions for settlement there is probably some significance in the fact that all of their sites are well below the southern border of the ice sheet in North America, implying that the ice had not receded far by the time of their arrival.

So much for where they went. Now for what their surroundings were like:

It seems that when these first tourists from Asia filtered down the Pacific coast and reached California, they arrived during one of those spells of unusual weather for which the state is famous. It was raining and it continued to rain on and off for the next 10,000 years. Real estate in California was definitely going downhill.

The period is known as the Provo Pluvial and was really a continuation of the Wisconsin glaciation in that the rain belts which had formerly fed the ice sheet in Canada now moved down into the arid regions of the Southwest. The shift was gradual, and as the rains moved southward, lakes began to form. In Utah, the Great Salt Lake of today is all that remains of the much larger and deeper Lake Bonneville which in the Pluvial period overflowed into the Pacific by way of the Columbia River. In Nevada, Pyramid, Walker, Humboldt and Winnemucca Lakes are survivals from old Lake Lahontan, and Mono Lake, in eastern California, was greater than it is today as can be seen by the wave-cut beach lines on the hillsides above the lake. Also in California where there is now only a river channel with a periodic stream, Lake Mohave at one time was 23 miles long and 3 to 6 miles wide, overflowing through the Amargosa Wash into Death Valley. Near Santa Fe, New Mexico, was Lake Estancia, and in southeastern Arizona there was Lake Cochise some 20 miles long and 11 miles wide where today there is only the broad Sulphur Spring Valley with no standing water.

So it seems fairly certain that it rained, good and plenty, during the Provo Pluvial (Noah recorded 300 inches in 40 days), but this does not mean that it rained all day long or every day. The sun shone in summer, even if it was not quite as warm as today, and many regions of the Southwest which are now arid deserts, were grass-covered, and many kinds of trees flourished where today are only cactus and creosote bush.

Such an environment was also favorable to all sorts of animals. In various places between Texas and California there used to be mammoths, mastodons, musk ox, several kinds of bison and antelope, horses, camels, ground sloths, saber-toothed tigers and dire wolves, most of them with fine-sounding names which are

nice to roll on your tongue—Smilodon, Megatherium, Megalonyx. It is very queer that they all died out. Tsetse flies, which have been found as fossils, may have been to blame for eliminating some of the hoofed animals. Some of them, chased and chaser, bogged down in tar pits; changing climate undoubtedly



played a part; but men, in all probability, were chiefly responsible, since they have always had the nasty habit of slaughtering more than they can use.

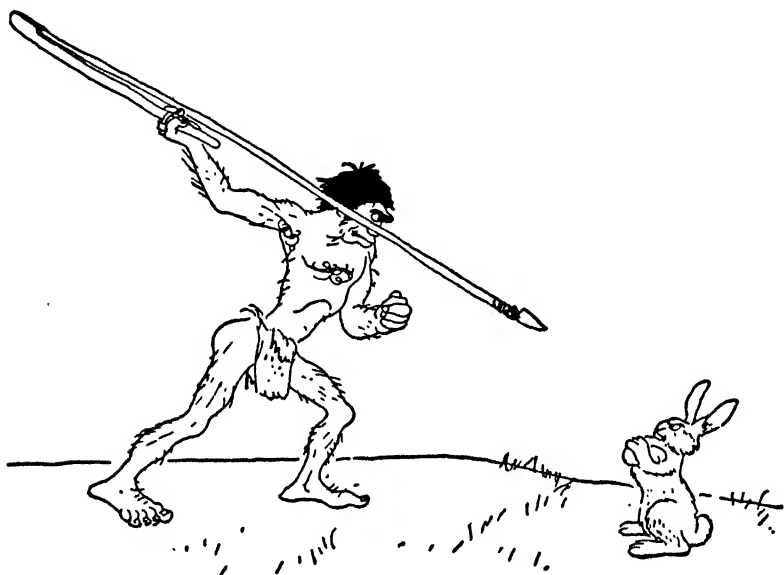
And now as to what they did:

To say that they were hunters is little more than to say that they were men, as there were probably just as many different kinds of hunters in the old days as there are today.

If tastes ran to saddle of mammoth or roast ribs of bison it was literally a case of all hands and the cook, and the more hands and cooks the better. Hunting in such cases was a community enterprise which called for a good deal of cooperation, since it needed a good-sized gang to drive a mammoth or a herd of bison over a cliff.

At the other extreme was the lone hunter who spent most of his time stalking or snaring small game and who was doing well

when he could provide his family with a rabbit stew or boiled prairie dog. A stranger trespassing on his hunting preserve meant a fight on sight.



Whether hunting a mastodon, a rabbit or a man, the weapons were about the same—a handful of darts, a spear thrower, a curved throwing stick, and some men may have carried bone daggers, or maybe a club.

With all of the possible combinations which lay between these two extremes of hunters, it is quite safe to say that there never has been a hunter of any kind who would not eat vegetable food when he had the chance. It was in this department of the domestic economy that women took over the controls.

Setting up housekeeping—or more properly, cave-keeping—in a new world with all sorts of plant life, it was not long before the

women began to experiment with new recipes. The knowledge of grinding seeds and nuts between an upper and a nether milling stone is world-wide, and such stones are found in early sites in the New World, so there is no doubt that this knowledge was brought in when the women followed their men on the long trek. It was simply a case of finding the right things to eat. Wild oats and other grass seeds provided cereals for breakfast; acorns were leached with wood ashes (another Old World custom), made into soup and served in hollowed gourds; caterpillars were tastily parched in shallow baskets over hot coals; oysters were served on the half shell; mustard and cress, onions and sage were to be had for the picking.

Whether the arts and crafts of American Indians were the result of diffusion from Asia or of their own independent and unaided efforts, there can be no doubt that they must be given due and ungrudging credit for their agricultural genius which provided the rest of mankind with a long list of foodstuffs of inestimable value—corn, potatoes, sweet potatoes, tomatoes, beans, squashes, manioc, peanuts, cacao, pineapples, peppers, guavas, avocados and a long list of drugs and herbs including such important items as tobacco, quinine and cocaine.

In other words, it seems that life was somewhat different and perhaps rather easier in the New World than in Asia because of a greater variety and abundance of edible plants, and a new world was literally opened up when women were able to rely upon a dependable food supply, whether it was stored in a basket or equally available on a tree, a bush, a stalk or a root. It was also a boon for the men as it gave them leisure to think up new kinds of magic and more complicated ceremonies and to plan new wars against their neighbors.

The great importance of this new type of life and its subse-

quent elaboration into the actual cultivation of plants is that there were many groups of people in various parts of North and South America who knew enough about horticulture to be able to appreciate the value of any new plants as these evolved in the warmer climate. In California, the people had acorns, nuts, seeds and sea foods, and it was unfortunate that these were just about as dependable as cultivated crops, thus making no demand on ingenuity. Men and women waxed fat and multiplied while they lolled about and let nature provide—a mode of life which modern Californians are always trying to revive by legislative enactment.



In other parts of the country, however, natives were improving their condition by bringing new plants under cultivation and devising new tools and methods. So it was that a day came when corn, one of the world's most valuable food plants, suddenly made its appearance and might have disappeared just as suddenly if men had not been prepared to take advantage of the opportunity. As Pasteur once said, "In the fields of investigation, chance favors the mind which is prepared."

Rain, Warmer

WE ARE reaching the time when we need your help. We can suggest ideas and we can prod a little, but to understand what was going on it will be necessary for you to use your imagination and do your best to try to think of yourself in the role of an Indian in the Southwest some 20,000 years ago.

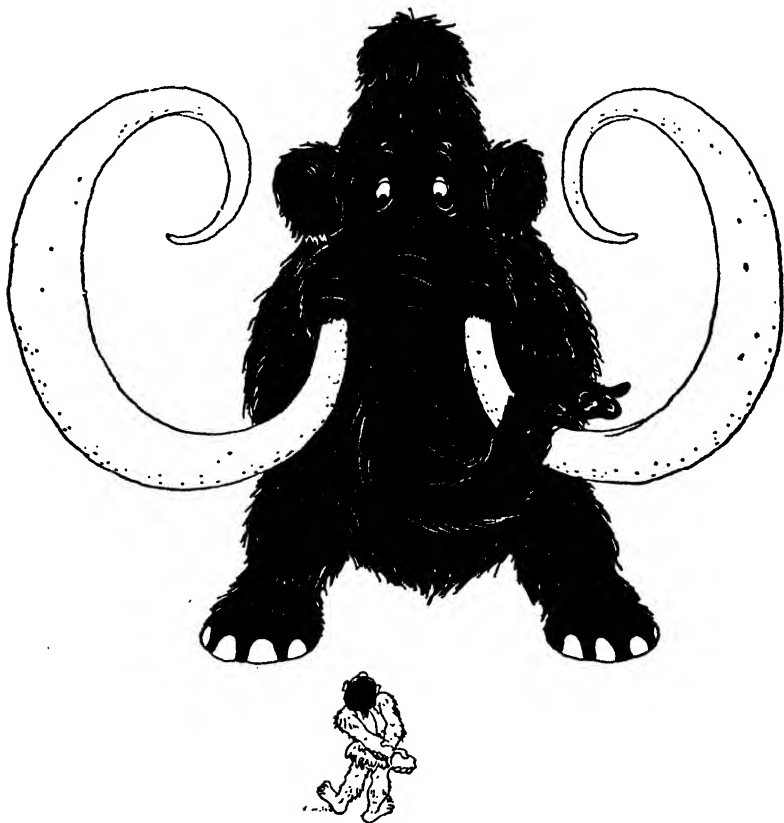
You must begin by visualizing an Arizona where there are no railroads, no highways, no towns, not even a house. The mountains, the mesas, the valleys and canyons are all there; the rivers and creeks are running bankfull all the year round, and it is safe to say that you could not drive an automobile 10 feet in any direction without getting stuck in mud or quicksand.

You are camped, let us say, on the western slope of the Chiricahuas, in Cochise County, southeastern Arizona, and from your camp you can look out on the broad sweep of the Sulphur Spring Valley and over to the Mule Mountains in the west.

Down in the middle of the valley there is a winding stream, and the setting sun breaks through a bank of clouds and is reflected in marshy pools along its course. As darkness falls occasional campfires twinkle at the river's edge and thin wisps of smoke drift on the damp night air. From a covert of oak and hickory comes the shuddering howl of a dire wolf, and the skin-clad folk about the campfires draw closer together. Up in the

valley to the north, a mammoth trumpets as he flounders helplessly in a bog (he was to be found there by us 20,000 years later), and night shuts down in darkness and in rain.

In the morning the picture is far different. Under a brush shel-



ter a woman kneels, grinding something on a flat slab of stone between her knees, while she tells her family that she is trying out a new recipe for tule tubers which she heard about from a woman up the stream. A boy gnaws a bone which he has just taken from

the dog; a young girl scrapes and pounds a hide to be made into a dress to keep abreast of the fashion of 19,999 B.C. There is a rumor in the valley that suède will be worn, and that grass petticoats will be longer.



A man shapes a flint while he mutters about the size of the camel, horse or antelope which got away from him yesterday, undoubtedly because some mean neighbor had put a spell on him. So, when the flint is finished, he takes a little lump of clay and makes an effigy of said neighbor, sticks it full of wooden splinters, throws it in the fire and starts off on his day's work with the knowledge that the forces of evil have been overcome and that his neighbor has a hard day ahead of him.

The rain falls endlessly—for years, for centuries—and generation on generation struggles through the seasons with only just enough sunlight to make living possible.



Five thousand years have passed. Somewhere off to the south, gravels and silts washed down from the mountains by the deluge have formed a barrier across the valley. Beavers have helped by damming the streams, and the pools and marshes of the old days have disappeared under the broad expanse of Lake Cochise.

When you look out from your camp, instead of flickering fires along the old stream bed, you can now see camps strung out along the beaches of the lake. The brush shelters are there. A woman again kneels, but instead of a flat slab of stone between her knees,

she now has a flat, oval, basin-shaped milling stone, such as is known to the trade as a "metate." A boy is again gnawing a bone, but instead of a camel or a horse bone, it is more likely to be the bone of an antelope or a mountain sheep. The camels and horses have long since disappeared from the land, the latter not to reappear again until, many thousands of years later, the Spaniards came riding on their chargers. A young girl is again scraping and pounding a hide to meet the fashion of 14,999 B.C., and rumor has it that grass petticoats will be shorter as the summers are growing warmer.

A man can be seen if you look hard enough in the right place. He is down among the tules on the edge of the lake with a large gourd or calabash over his head, with holes cut for his eyes and to give him air. Other empty gourds are floating on the lake and the ducks and waterfowl pay no attention to them. The man wades out under his gourd, chooses a nice fat canvasback, grabs him by the leg and pulls him under the water. There is no fuss and feathers, the other birds are not scared, and the operation can be repeated if friends are coming to dinner; and the man strolls home to hear again from his wife that he is a mighty hunter and a very smart guy. Incidentally, he did not invent the process but learned it from one of those fellows who recently came over from Asia, where the trick is as old as the hills. All that is necessary is a lake, a duck, some gourds, and a man—a formula which is the equivalent of meat in the pot and which, in its day, was infinitely more important than an Einstein equation.

These new arrivals also brought some other ideas, but the men of Cochise County were slow to change. They had managed to get along as they were for 5000 years, and why get excited over a lot of newfangled ideas? The gourd stunt was all right because it was fun to float around in the lake and it saved tramping over

the hills, but the other novelties would need a lot of proof before they could be accepted.

Five thousand years more have passed. It is much warmer, and Lake Cochise has gone. Sometime around 12,000 B.C. the lake overflowed, and, once this happened, the rush of water cut channels through the barrier and the beaver dams were carried away.

As you look out from your camp you see again the camp sites along a stream winding its way through pools and marsh. It is not raining as much as in the old days, and it is much warmer; otherwise there has been no apparent change. There are the same brush shelters, the same metates, the same kind of people.

One group is worth watching. There is a knot of several men and women sitting around a boy of twenty-odd years who has a tale to tell. He has just returned after a long trip toward the east to what is now eastern New Mexico and western Texas, where he saw men and women who were quite unlike the Cochise people. They were very dark, some of them almost black, and they had very queer faces—no ridges over their eyes, their heads not as streamlined as those of the Cochise folk, foreheads were higher and not so narrow, and they talked a sort of gibberish which no one could be expected to understand.

These people also had a lot of strange customs. They did not shape their flints in the same way as everyone else, but went through a long rigmarole of striking off a flake which ran the whole length of the point. It sounds crazy, as it is obvious that 9 out of 10 points would be smashed in the process, but the boy has brought one back with him to show he is not lying (we found it in 1937).

Then these strangers had a new way of making baskets. Instead of coiling, like everyone else, they twined grass stems in and

out between reeds and ended up with a cone-shaped basket which was queer looking, but really quite useful for carrying things on one's back, particularly when a strap was attached to the sides and passed over the forehead.



As the boy demonstrates how he carried a large squash and all of his belongings in his basket, it is amusing to watch the growing disgust on the faces of the men, especially the old-timers. After all, it is darned annoying to have spent one's life in doing things in the only proper way, as one's father and grandfather taught one to do, and then to have to listen to a lot of drivel about how some crackpots off to the east are ignoring the old traditions and trying to introduce a lot of crazy ideas. "Boys ought to stay at home. It can do no good to stir things up by talking about twiddling baskets or wasting time making fancy flints. Things are not

what they used to be. The younger generation lacks balance and is going to pot." Thus, the old Medicine Man.

With the women it is quite different. Two of the older girls are giggling over their attempts to start a twined basket, and a mother has put her baby in the burden basket and, with the tumpline on her forehead, is walking around waving her hands to show that they are free. Everyone is laughing, but it is just the thing to



take when one goes marketing; it will hold everything—a mess of caterpillars, half a dozen catfish, or a lug of mesquite beans. Its value is immediately apparent, and after studying the weave the women start plucking reeds and set to work.

The men give up in disgust and go into a huddle behind a clump of mesquite. One of them starts whirling a bull-roarer to annoy the women, and they all decide that the best thing to do is to give the young adventurer a thoroughgoing initiation and so restore their prestige.

Again 5000 years have passed, and it is now 5000 B.C. You are no longer camped in the Chiricahuas, because about 500 years ago the climate became gradually warmer and drier and you had to move up to the Gila or a few miles west to the San Pedro to find water.

The Cochise people, whom you have been watching, are having a pretty tough time. Mesquite beans are still available, but other seeds have become scarce on account of the drought; caterpillars are hard to find in any quantity since the oaks and hickories disappeared; rattlesnakes are not as fat as they used to be now that prairie dogs are dying off; and game is getting scarce and wary. Everyone has had to exercise all the ingenuity of which he or she is capable to relieve the situation. The women have taken to cultivating squashes and are experimenting with all sorts of other plants and herbs, and the men are exhausted from singing and dancing in their attempts to placate the higher-ups.

Word had come through from Texas some years ago that a variety of yucca, called sotol, was edible if placed in a hole in the ground, covered with hot stones and earth and allowed to cook for several days. It is not bad, but it takes an awful lot of hard work to dig the holes, heat the rocks, cover it up and then dig it all out again. The women are making quite a fuss about the amount of work which it involves, and so the men are going over the situation very thoroughly in order to find just the kind of chant that is needed. Game is scarce, there is so much cactus one can't get about easily. It is too hot to move around much, and this provides an opportunity to sit down and talk things over. One man did hit on something that turned out well. He had collected some cactus fruit because it looked good to eat, put it in a gourd and forgot about it. When he remembered it some time later it had fermented, and after taking a few sips of the juice, just to

taste it, he went out and found a bear, punched it in the stomach and broke its back. He has been made chief Medicine Man.



Then another man met one of those strange fellows from the east who talked a queer lingo, but he showed our man how to take a hollow reed, stuff it full of some sort of weed, set it on fire and suck in the smoke. It sounds awful but is really great fun once you get used to it. It will have to be made into some sort of ceremonial, however, as some of the women are starting to try it, and it would look bad to see women smoking in public. Besides the appearance, smoking makes one feel rather slack and lazy, so the Medicine Men are taking the situation in hand.

Five thousand years again have passed, and this is the last long jump we shall be able to take. From now on we shall have to deal with centuries instead of millennia.

It is a few centuries before Christ; there have been some important changes in other parts of the Southwest, but life in southern Arizona goes on in much the same old way. A few new ideas have been introduced; some people who were passing through brought a new plant which they called corn, and it has turned out to be a great success. However, it needs to be cultivated, and, what is worse, it has to be stored away where the rats can't reach it. So,



if the women cultivate corn the men have to dig storage pits, or vice versa, and this makes it hard for everybody. If the Medicine Men could teach the children how to cultivate the corn without eating it all, then the women could handle the storage and the men would have time to make the proper prayers and conduct appropriate ceremonies. You can hardly expect a good crop of corn without the right kind of ceremonies, and it would not be fair for the men to let the women down by not giving them all possible help.

The storage pits are very ingenious—about five feet deep, five to six feet wide at the bottom, and narrow at the top—not more than about three feet. We made them this way because someone was always waiting to steal the grain as soon as one's back was turned. Now if anyone tries to help himself to our stored corn he will not be able to climb out and will get caught. We cover the narrow entrance hole with a stone slab and seal it with mud, so affording perfect protection against rats and mice.

Another great improvement has been the building up of the sides of the brush shelters, and covering roof and sides with mud to make a really snug house. A door is left open on one side, and a fire pit placed just inside so that the room can be warmed and the smoke can escape through the doorway. Having real houses has given everyone a more settled feeling, and from having once been hunters the men have time to sit down and talk things over thoroughly before doing anything rash.

Metates have also been improved. Instead of the old basin type, which was all right in its day, there is now a larger metate with a deep trough which is much better for grinding corn. The old hand stone which was held in one hand and worked with a circular motion has given way to a two-handed mano, used with a back-and-forth motion. The new technique is not so hard on fingernails and gives the women a lot of healthy exercise.

So much for the Cochise people at about 300 B.C. They were not, of course, the only inhabitants of Arizona during the last 20,000 years, but the other groups with whom they were on speaking terms did much the same things, in much the same way, at about the same time.

Negroids in the Making

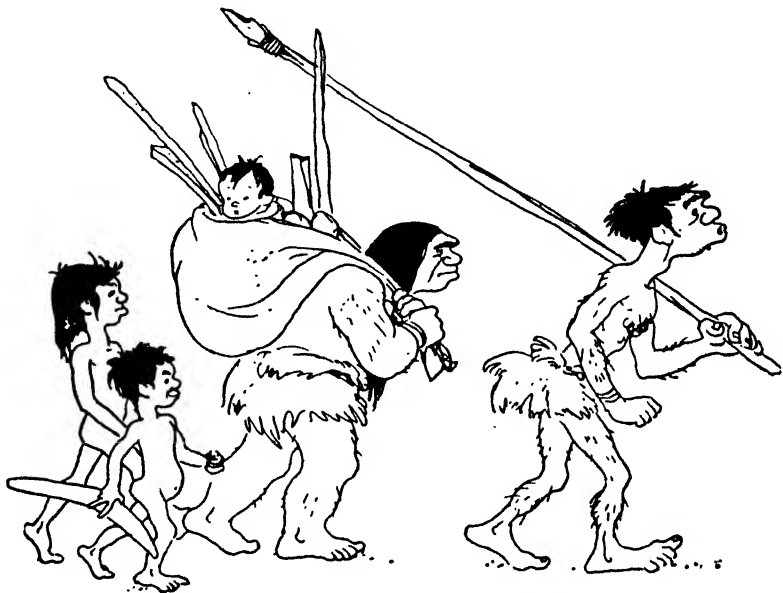
IN THE previous chapter we told of a Cochise boy who had returned to southeastern Arizona after a trip to western Texas where he had met people who were strange to him, whose language he could not understand and who did not do things in the old, familiar way. To understand what had happened we must hark back to about 15,000 B.C.

The first migration to enter North America began about 25,000 B.C., but the movement lasted for quite a long time, and groups kept coming for several thousand years. It was made up of people who were related, in greater or less degree, to the people who also colonized Australia and many of the islands off the shores of eastern Asia, and less, rather than more, to similar types in India (the Vedda), and even in Europe (descendants of Neanderthal).

On entering the New World they worked their way southward to a warmer climate with the result that a large number of them eventually reached South America. As families found the surroundings which suited them they settled down, population increased and the far country beckoned only to hunters as they ranged afield.

Slowly, little by little, during hundreds of years, men came home from their hunting with tales of far lands beyond the horizon; women followed their men, and the pioneer fringe spread out to Arizona, New Mexico and Texas, all well below the ice

sheet. Here the adventurers made themselves new homes by digging into a bank, choosing a cave or setting up a brush shelter where they carried on in much the same way as their ancestors had done before they left Asia.



Rather than a mass migration of people on the march, you must think of these early men and women as groping their way into a new world where the mountains, the valleys, the animals and the plants were all strange to them. It was a slow and gradual infiltration with many halts and pauses, and it required several thousand years, during which time the climate was becoming warmer.

It may help you to understand the magnitude of this movement if you realize that this Australoid migration flowed in and filled not only the southern section of North America but also

Central and South America. Skulls from caves and early sites show that people of Australoid type were once widely distributed, and survivals of some of their features, customs and culture are still to be found in isolated localities.

The years passed and then the third of those human dispersals, for which the Old World has always been famous, took place. You will remember that the first was when the Pygmies fled to the ends of the earth and got there just ahead of the second—the beetle-browed Neanderthal-Solo-Wadjak-Talgai-Australoids.

The third episode occurred when the Negroid family made its first appearance on the stage. Africa has been the traditional home of Negroes down through the ages, and one is tempted to follow an easy course by saying that all Negroid peoples throughout the world, must, in one way or another, have been derived originally from Africa. Unfortunately, such a simple explanation has some flaws which it is difficult to laugh off, such as some of the differences between the various Negroid groups, particularly those in Africa and Melanesia.

An explanation which might come nearer to the truth would be to say that it was more probably a Negrito rather than a Negro who was at the bottom of this particular woodpile, and so suggest that some of the resemblances between the African and Oceanic Negroids were due to a common Negrito factor in their ancestry, plus subsequent mixtures with neighboring friends to account for existing differences.

In a case like this it is impossible, of course, to satisfy everyone, but some such explanation would have the added advantage that we should not be bound down to Africa as the birthplace of the Negroids, since it would be equally simple to have them delivered in the Asiatic maternity ward and move them over to the African nursery at the proper time. You may be raising an eyebrow at the

idea of Negroids in Asia, so when one makes a general statement of this kind it is always well to pass the buck to someone else—in this case Hooton, passing to Dixon, in *Up from the Ape*.

“There is evidently a considerable gap between the African and Oceanic Negroid groups, but it is probably a gap in our knowledge rather than distribution, so far as prehistoric times are concerned. Little is known of the physical characteristics of the inhabitants of Arabia today and nothing or practically nothing about the races which peopled it in ancient times. The southern Arabs show clear traces of a Negroid admixture but whether this is recent or ancient it is impossible to say. Dixon asserts that near Susa, in the lowland on the borders of the Mesopotamian plain and southward along the coast in Arabistan and Fars, there is a well marked Negroid factor in the population.

“When we reach India and go from north to south in that vast peninsula, a Negroid strain in the population, everywhere perceptible, becomes more and more marked. Indeed, in central and southern India there are tribes of Dravidian stock which are short, black-skinned, with strong curly or frizzly hair, very broad noses and thick lips. Among these Dixon mentions the Kadir, Kanikar, Kurumba, Paliyan, et cetera—timid people of primitive culture living in scattered units in the more inaccessible mountains of the extreme southwest. These he regards as remnants of the earliest stratum of the population, crowded back into refuge areas.

“In the Malay Peninsula and in the adjoining Andaman Islands are found among other populations true pygmy Negritos, purest perhaps among the Andamanese. According to the view of Dixon, these were the earliest inhabitants of the region, but a second group of Negroids and Australoids, of greater stature, have blended with them. Traces of this Negroid population may

be seen among the hill folk of Burma and Assam. It, therefore, seems probable that pygmy Negritos, and, subsequently, full sized Negroes were in all probability the aboriginal inhabitants of most of southeastern Asia and that they have been dislodged therefrom, in large measure, by subsequent invasions of more advanced peoples, generally speaking, of a Mongoloid type.

"Further there are sporadic traces of Negroid intermixture to be found along the Chinese-Tibetan border, so that we must reckon with the possibility of Negroids having extended much farther north into Central Asia in prehistoric times."

There is a hint here and an implication there that the explanation of an underlying, common Negrito ancestry may have entered, even if it did not sponsor, some of the Asiatic Negroids, and so, if I have not already been vague enough, I will further dodge the issue by saying that when one adds *-oid* to a name it is an admission that one is looking for the nearest exit.

However they got there—from a Negrito root, or a pedestrian route, or by spontaneous generation—we are confronted with the fact that a large number of people, possessed of features which have been described as Negroid, are now to be found in the islands of Melanesia. Some of them are needed in North America to explain certain features in certain peoples, and so we are going to say that once upon a time, about 15,000 years ago, these Asiatic Negroids followed the example of the earlier Australoids and split again, some working their way out to the islands of Melanesia, others heading northward up the coast of Asia and eventually into North America. There was this difference, however, that when the Australoids parted company with each other they had the place pretty much to themselves and so remained relatively pure; but when the Negroids did the same thing some thousands of years later, they had to pass through other peoples

who had moved in during the interval, with a consequent dilution of Negroid features. Now this is a very important point to remember, because, when you begin shoving people halfway around the globe the chances are that you will wind up with a physical type which is quite unlike that with which you started.



As Hooton says, "When different races of men come into contact with each other they sometimes fight but they always breed." Rather than being surprised, therefore, that your particular migration has changed during the course of its wanderings, the real cause for wonder is that any moderately pure races can still be distinguished.

The average person usually has no difficulty in recognizing such racial types as Negroes, Australians, Mongols or Caucasians, but many of the features which make such recognition possible

become latent or recessive when crossed with other dominant types. It has been fairly well established, for instance, that broad heads are dominant over long heads, brown eyes over blue, and brunet over blond; but sometimes the features blend, as in the skin color of a white-negro cross which produces a mulatto. It is probably also true that no physical feature, however recessive it may be, is ever entirely lost. The children of fathers whose heads were broad and of mothers with long heads will probably grow up with broad skulls, but the shuffling of the genes of diverse types frequently results in the release of characteristics which may have been submerged for several generations.

So, when you run up against such borderline cases, the best thing to do is to ask Earnest Hooton what happened and then twist what he may tell you to suit your purpose. In this case, he has told us that there were Negroid peoples in southern and southeastern Asia, and that there are sporadic traces up into China. Of even greater importance, in view of what has been said above, are his remarks:

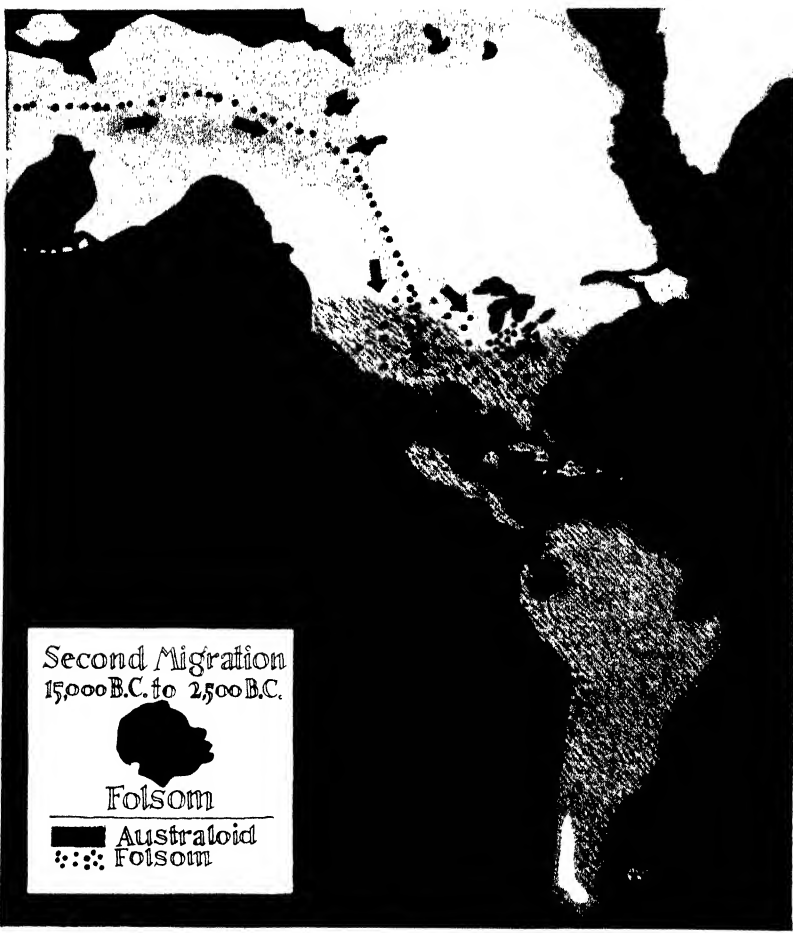
"I do not think that there is sufficient craniological or other physical evidence to support the supposition that any group of Negroes or Negritos ever reached the American continents before the coming of Europeans. But I do think that some of the earlier strata of the American population show indications of having carried with them in solution from Asia a Negroid strain of blood."

These quotations from Hooton give us the support we need when we say that a people showing a Negroid strain in their make-up once lived on the shores of the western Pacific. There they divided, one branch pushing out to the islands of Melanesia, the other moving northward up the coast of eastern Asia, and so into North America.

The general outline of this suggested migration seems also to agree with what Roland B. Dixon had in mind when he wrote in his *Racial History of Man*:

“For the earliest assignable homeland or focus of dispersion of the Proto-Negroid type we may probably, although not certainly, look to northern and western Africa. As the Proto-Australoids streamed west along the southern margin of Asia, so it may be supposed the Proto-Negroids, probably at a later date, drifted eastward through India to southeastern Asia and thence through Indonesia and Melanesia to Australia, with a long arm stretched out farther through central Polynesia as far as Easter Island. Like the presumably older Proto-Australoids they followed northward up the eastern Asiatic borderlands and penetrated to the New World, drifting, or being later driven by other immigrants, southward and toward its eastern shores.”

We thus have plenty of good authority behind us in bringing our Negroid migration into North America. Here's hoping we can also all agree on what they did, and where they went, after they moved in.



Second Migration
15,000 B.C. to 2,500 B.C.



Folsom



Australoid



Folsom

The Second Migration

NEGROIDS IN NORTH AMERICA

ALTHOUGH it may be true that at 15,000 B.C. there was still so much moisture impounded as ice that the Bering Isthmus had not been covered by the rising sea, it is also true that the northern ice sheets had been decaying for about 10,000 years. As a result, the great Keewatin sheet which had covered western Canada was thinning and beginning to recede eastward, parting with the glaciers of the western cordillera and so opening a corridor along the eastern foothills of the Rockies.

Thus it was that this second migration entered Alaska sometime about 15,000 B.C., but instead of following the coast these people worked up the Yukon for some 600 or 700 miles to the Porcupine and then over a low divide to the Mackenzie. Once in the Mackenzie drainage the corridor opened out to the south, and the incoming groups were guided through this passage, down through western Canada—where characteristic tools in Saskatchewan indicate the route which was followed—and thence into the western plains.

Leaving snow and ice behind them, these new arrivals entered literally into the happy hunting grounds where, in their exuberance, they drove herds of bison over cliffs and battered on the carcasses. It was the debris of such a buffalo drive near Folsom, in northeastern New Mexico, that was found by J. D. Figgins in

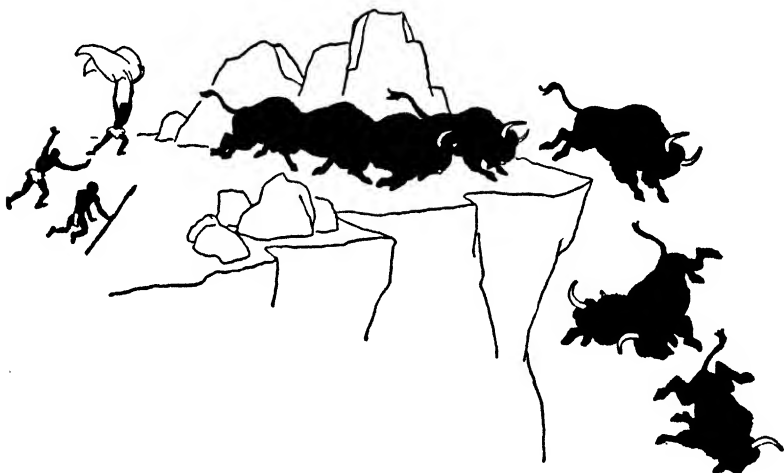
1926, when he uncovered a great pile of bison bones mixed up with a few finely chipped and channeled flints, to which he gave the name of Folsom points.



There are several features about these Folsom points which are both peculiar and significant. They show marked excellence of workmanship. They were extraordinarily difficult to make. Scattered instances have been found all the way across the continent. And yet there are only three places which can be called true Folsom sites—Folsom, New Mexico, where a number of channeled points were mixed up in a pile of bones of an extinct form of bison; Clovis, New Mexico, where a few fluted points were found in the same strata with bison and mammoth bones; and the Lindenmeier site, northern Colorado, where the only actual occupation yet found was excavated by Frank H. H. Roberts, Jr., as a result of which it was possible for him to round out the com-

plex of culture by describing the scrapers, graters and knives or blades which were found with the typical Folsom points.

All in all, there is not much material upon which to build, and it is not always clear how much can properly be tucked under the Folsom blanket when it comes to trying to define a man-size migration. One gets the impression that the people who left their



tools at Folsom, Clovis and Lindenmeier must have been few in number and didn't stay long. They appear to have been hunters—chiefly of bison—and lack of grinding tools in their sites indicates that they were not very concerned with the preparation of vegetable foods, although they undoubtedly ate nuts and fruits when they could find them.

Probably the most important feature of the Folsom culture was the quality of their work in chipping flints. The delicacy and accuracy of some of their flaking at once suggests a relationship to the better known Solutrean industry of western Europe, even though the standard of excellence was not always maintained.

Most of the really good points, with characteristic fluted channels and finely flaked edges, have come from Colorado and eastern New Mexico, with a few reported from Alaska and Saskatchewan. Indifferent ones have been found from the Rockies to New England, with a marked concentration along the Ohio, Missouri and upper Mississippi. A few poor ones, which would probably not be acknowledged by a Folsom flint chipper, have been picked up in California, Arizona and Texas. None has been found anywhere in Mexico or Central or South America.

Throughout a large part of the area where Folsom points have been found, there are also beautifully flaked points—called Yuma—which lacked the fluted grooves of Folsom but are even more typically Solutrean in the delicacy and regularity of their flaking. Judging by the character of the chipping and the coextension of the two types, it looks as if both were products of the same people, and the differences between them could be explained either as their having been made to serve different purposes, or, possibly, as stages of development. If there was a difference in time it is probable that the more highly specialized Folsom evolved out of Yuma than vice versa. In any case, the Solutrean quality of the flaking and the fact that the Solutrean industry in Europe has been dated at 15,000 B.C. suggest very vaguely the time of the arrival of this second migration.

Several rather important facts are brought out by the distribution of the typical Folsom and Yuma flint tools, such as that the people who made them were not the first to reach North America. With unmistakable traces in Alaska, Saskatchewan, western Nebraska, Colorado and eastern New Mexico, it is clear that they moved southward through the western plains until they reached northern Texas, but the relative scarcity of true Folsom

sites indicates that the vanguard of this second migration consisted of only a small number of people.

The belief that the early Folsom pioneers were few in number is also supported by the fact that these bands were halted in their southward trek as soon as they reached eastern New Mexico and northern Texas. Here they entered country which was occupied by Australoid people of the first migration who had settled throughout the region from southern California to the gulf coast of Texas. Rather than attempting to push through and over this human barrier, some of the incoming groups came to a halt and established themselves along the northern fringe of the Australoid settlements, where they mixed with the resident population to become, eventually, the ancestors of the Basket Makers of northern Arizona, one of our best-known Southwestern families, to whom you will soon be introduced.

Further distinctions based on the character of their stone industries can be drawn between the Folsom people of the second migration and the earlier Australoids. As also in other parts of the world, the Australoids who shaped their flints by percussion were incapable of exerting the exact control which was made possible by the pressure flaking of the Folsom technique, but, although the knack of pressing off minute flakes was admittedly a late refinement, it is quite certain that some people continued to employ percussion as the easiest method of shaping their flints. In many cases both pressure and percussion were used, depending upon the kind of tool needed, and, in consequence, the technique per se does not provide a very dependable gauge of time.

A more important difference lies in the fact that the kit of tools which has been identified with each of the pure Folsom sites makes it clear that these people depended primarily upon hunt-

ing for their living. None of their tools suggests that they were designed for use in the collecting or preparing of plant foods.

On the other hand, the Australoid people, particularly those in southern California and southeastern Arizona, seem to have depended chiefly upon plants for food. This was shown, first of all, by the scarcity or complete absence of stone projectile points in their camp sites; and, secondly, by the abundance of ground stone tools, such as milling stones and hand stones, used for grinding various kinds of seeds in the preparation of gruel or flour. There may also be some significance in the size and location of their camp sites which suggests a more sedentary kind of life than that of nomadic hunters.

Before leaving these people for a little while there is a point to be settled.

You may have noticed that when we started this second migration on its way we suggested that there was a Negroid strain in the make-up of the people, but now that we have been dealing with their actual remains in eastern New Mexico we are referring to them as the Folsom people. The reason for this switch is that no one has yet succeeded in finding an indubitable Folsom man, and so we are just calling the shot when we say that his skull, when found, will probably show some Negroid features. The guess is based on our belief that Basket Makers were the product of the merging of a few Folsom people with a larger number of the earlier Australoid settlers, so accounting for the Negroid traces which have often been mentioned as present in the Basket Makers.

With the leading bands of the Folsom migration piling up against the Australoid settlements in Texas, New Mexico and Arizona, other and later arrivals veered off to the east so that, as the years passed and the flow from Asia continued, North Amer-

ica gradually was filled from the Pacific to the Atlantic and up into Canada. The later waves, of course, were not made up of people of exactly the same type as the Folsom pioneers, and as the millenniums rolled along there were marked changes in the



cultural baggage which was brought in by the successive waves. Following the first Folsom hunters, for instance, there seems to have been a fairly long period during which the tide of migration flowed in a more easterly direction, and later people who shaped their flints in the general Folsom tradition left quantities of their fluted points behind them as they hunted in Illinois, Indiana, Ohio and off to the east as far as New England. In saying that

these fellows followed the Folsom hunters there is an implication that they might have been a separate migration, but it is much more probable that they were closely related to the "first families of Folsom" than that they belonged to a different stock. At any rate they made much the same kind of fluted points and they



shared the Folsom taste for bison—the main difference being that the later Folsom men hunted the great *Bison latifrons* which roamed the forests of the upper Mississippi valley while the Folsom hunters of the western plains lived off of *Bison taylori*.

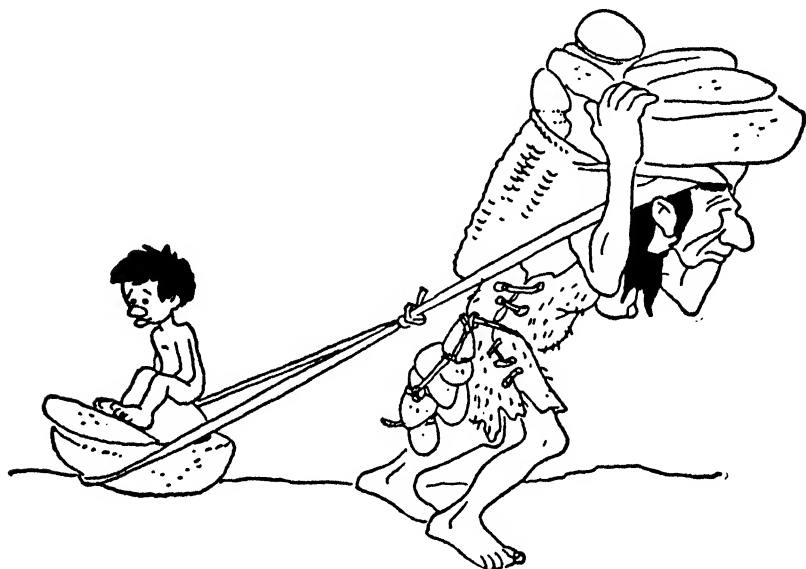
As time passed, a change took place in the manner of life of those hunters who had entered the boreal forests of the eastern woodlands. As the bison slowly disappeared the hunters of the

forests learned woodcraft when they stalked a deer, a moose, or a bear, or else went hungry. An important part of their education was the discovery that berries, fruits and nuts were good to eat, and this undoubtedly was one of the steps leading to a more settled kind of existence.

All of this took a fairly long time, during which more groups came trickling in across the open water of Bering Strait, bringing new faces, ideas and gadgets with them. The old fluted points were dropped in favor of small tanged points as bows and arrows replaced javelins, and, at about the same time, ground stone tools made their appearance in the form of beveled celts and adzes, grooved mauls, pestles and mortars, metates and hand stones. A beveled celt, incidentally, is not an Irishman or a Welshman with a slight edge but is the name for a grooveless ax of polished stone. It was beveled on both sides and hafted by wrapping to a handle, or, in some cases, as amongst the Algonquin of colonial times, a hole was first bored through the handle, the celt inserted, and then bound with sinew or reeds. An adz was much like a celt, but beveled on one side only. It was hafted in the same way as a celt, but the cut was transverse and the tool was used chiefly in hollowing dugout canoes. A maul was usually a cylindrical rock, three or four inches in diameter and five or six long, with an encircling groove around which a withe was bent and lashed to make the head secure. Celts, adzes and mauls could all be used as weapons, depending upon whether one preferred to split a skull lengthwise or crosswise, or just mash.

Pestles and mortars were merely the prototypes of the swizzle sticks and glasses which one uses in crushing sugar for "old fashioned"; and metates and hand stones were used for grinding seeds and grain for flour. As a metate may weigh up to 50 pounds,

and a good-sized mortar may run up to 100 or more, it is easy to understand that the women would not be apt to move camp on the spur of the moment and lug such utensils around for fun. Tools of this sort indicate the kind of life in which a man who started off at dawn on the trail of a buck could feel fairly sure that



his home would still be in the same place when he returned at night; that his wife would be ready with the currants and the squash; that there would be a campfire in the clearing after supper where he and his friends might sing a little ditty, or try out his new blend of kinnikinnick (the last had too much willow bark and not enough sumac) or sample a taste or two of the new brew and decide whether it should be used for medicine or as poison.

Very much the same thing was going on down in southeastern

Missouri and northern Arkansas, where the Ozark bluff dwellers had been setting up new standards in a new world. By punching a hole in a mussel shell and then pushing a stick through the hole someone had made what archaeologists have called a hoe, although there might be some confusion if you tried to order one from your local hardware store. Then, having a hoe, they needed something to cultivate, so they started on pumpkins, added beans, sunflowers and gourds and wound up with corn, a crop which came from no one knows where but which as food has always been of great value both for nourishment and for argument as to its origin.



A few years ago the situation was fairly well under control when Dr. Phuddy Duddy made up his mind that corn must have been invented by a Mexican. This idea lasted quite a long time

until someone pointed out that corn might have needed a little more time for its evolution than could justly be claimed for Mexican civilization. So Phuddy decided that the first ear of corn must have been grown in the highlands of Guatemala; but these Indian civilizations are just like air mattresses, you push down in one place to give yourself a little chronological elbowroom, and the darned things puff up again somewhere else.

So then Phuddy moved his ideas down to Peru, and here he hit the jack pot! He discovered a fossil ear of corn! The question of where corn originated appeared to have been settled beyond all doubt. But some men seem to derive a grim delight from upsetting proved verdicts, and one such was unkind enough to look at the fossil under a microscope only to find that it was made of pottery. Phuddy could have found this out for himself if he had tried it out with a little butter, pepper and salt. When last seen, he was still heading south, muttering to himself.

The bluff dwellers of the Ozarks make their bid to be regarded as respectably ancient on the evidence of their earliest levels which contain no pottery of any kind. They led a quiet, sedentary sort of life, as shown by their storage pits, cut down into shale, which contain the remains of the various crops they cultivated. They also made the most of what nature provided in the way of acorns, nuts, wild grapes and many small animals.

Off to the west, changes were taking place, too. In eastern Nebraska people had turned to horticulture and were raising summer squash, but, strangely enough, apparently knew nothing about corn or beans. The stage of village life had been reached, as is shown by the remains of their thatch- or bark-covered huts. The polished celt, or grooveless ax, was known and used, but the people who lived along Sterns Creek had no flint industry worth

mentioning, which implies that they had lost their interest in hunting anything larger than deer. To a diet which consisted chiefly of squash, they added small animals and birds, with fresh-water snails and mussels for feasts or fiestas.

The chief significance of these scattered instances is that during the last millenium before Christ, peoples in many regions of North America were settling down to a sedentary form of existence. From the deserts of the west to the woodlands of the east, villages were springing up as women brought more native plants under cultivation and communities became more closely tied to their local environments. With the added assurance provided by a stored food supply, men were able to devote more time to improving their tools and weapons, to trapping, and to building more substantial houses and storage facilities. It may not have been civilization, as we understand the term, but it was the sort of life which was an essential prerequisite to the founding of native civilizations.

The Basket Makers of Northeastern Arizona

BY FOLSOM—OUT OF AUSTRALOID

ALSO IN the West, but well to the south of Nebraska, another interesting situation had been developing, and the time has come for you to meet the Basket Makers of the Southwest, by which we mean the people who were largely responsible for laying the foundations of culture in southern Colorado, southern Utah, northern Arizona, New Mexico and western Texas.

A little while ago, in discussing the arrival of the second migration at about 15,000 B.C., we mentioned that some of these partially Negroid groups had established themselves along the northern border of the earlier Australoid settlers, with whom they had mixed to become the ancestors of the Basket Makers. Before going any further, it will be well to back up this statement with one or two other opinions, and I again turn to Hooton, in *Up from the Ape*:

"In the southwestern United States the earliest population known is called the Basket Makers and consisted, from the point of view of physical anthropology, of slender short persons with dolichocephalic heads, narrow and longish faces, and rather broad, low noses. They seem to show affinities with the funda-

mental brunet dolichocephalic type which we call the Mediterranean race, but they occasionally display also hints of Negroid admixture. Certain features of the face and skull, notably heavy brow ridges, depressed nasal roots, and scaphoid skulls, may indicate a strain of the problematic white race which is represented more distinctly in the Dravidians, the Australians, and the Ainu."

For the time being, we are not concerned with the Mediterranean strain which Hooton found in the Basket Makers, although it is something to bear in mind; but it means a good deal that Hooton has been able to detect hints of Negroid admixture, and to identify traits which were shared with Dravidians, Australians and Ainu—all of whom can be classed as Australoid—in Basket Maker skulls as of the time of Christ or later.

This quotation from Hooton leaves no doubt that, in his opinion, Basket Makers showed evidence of a Negroid-Australoid blend, but it is a factor of such great importance to an understanding of what actually happened in the old days, that I am adding Dixon's opinion for good measure:

"... we find a strong Proto-Australoid factor present here in the southwestern portion of the continent. It is the dominant type by a large majority in the island of Santa Catalina in both male and female series, and for the females in San Clemente; and it was even more important among the now extinct Pericue of the southern tip of the Lower California peninsula. This latter region and the islands off the California coast are the most isolated and marginal portions of the whole continent here, and the dominance in such large measure of the Proto-Australoid type is, as I shall try to show, of much significance. That the type has been present hereabouts for a long time is shown by the fact that it vies with the Mediterranean type in the Basket Maker crania. It

still survives among the Ute and Pi-Ute and also among the Tarahumare and Pima of the Mexican border country. . . . In the present area [the Southwest] the Proto-Negroid type is of relatively slight importance. In the islands off the California coast it is lacking amongst the males although present as a small minority among the females; it is not found in the Pericue, and occurs only as a trace in the Ute and Pi-Ute. The Basket Maker crania, however, show a contrast to the more modern population, in that the Proto-Negroid type is present in large amount in both sexes. This would appear to indicate that this type was at an early date quite prominent in this portion of the continent; and this belief is corroborated by the crania from the ancient burial caves of Coahuila in northern Mexico, which exhibit this type as clearly dominant! It is interesting in this connection to find that culturally these people of Coahuila were in many respects closely allied to the Basket Makers."

Dixon therefore not only confirms the presence of both Australoid and Negroid in the Basket Maker physical make-up, but he also bears out what has already been said about the distribution of the Australoid type. It was dominant on the islands off the coast of California, also in the Pericu of Lower California, and vestigial in the Utes, Pi-Utes, Tarahumare, and Pimas, thus covering most of the country lying between the Pacific coast and the Rio Grande.

From what Dixon has said it also is clear that the Negroid element was much stronger in the eastern section of the Southwest than in the west along the Pacific coast. It was only among the Basket Makers of the San Juan and the Coahuila caves that Negroid features were at all prominent, a geographical distribution that fits very well with the idea that these features were introduced by people who had reached the Southwest by way of the

western plains, such as those who were responsible for the Folsom culture.

With these opinions to support the claim that the Basket Makers were a cross of Negroid on Australoid, we can now go on to say that, as is so often true at other times and in other places, along the zone where these two migrations met there was a blending of peoples and their crafts, and the result was something better than had gone before.

In the caves of the Big Bend in western Texas and in the Guadalupe Mountains of eastern New Mexico men and women found that life was comparatively easy and secure. The necessities were all there—shelter, game, food plants, wood and water. A man had time to think about his immortal soul. A woman was able to give some thought to the new styles in suèdes and furs and the latest thing in sandals with open toes. The children could grow up without being scared to death by mammoths, giant sloths or dire wolves.

The years passed, a great many of them, and then one day there came some men bringing yellow seeds which were said to be good to eat. Out came the metates, the parching trays, and the boiling-baskets. The Medicine Men were served. They tasted and chewed. And, after growling about the amount of grit which the women had ground into the mush, they decided that corn could be added to the bill of fare.

At last there came a time, about 500 B.C., when the caves in the Big Bend were sheltering a large population, growing rapidly larger with the assurance of an abundant food supply. Possibly it was this increase, resulting in overcrowding, or possibly it was the restless itch of which Kipling * wrote:

* From *Departmental Ditties and Ballads and Barrack-room Ballads* by Rudyard Kipling, copyright 1892, 1893, 1899, 1927, by Rudyard Kipling. Reprinted by permission of Mrs. G. Bambridge and Doubleday & Company, Inc.

Something hidden. Go and find it. Go and look behind the Ranges—

*Something lost behind the Ranges. Lost and waiting for you.
GO!*

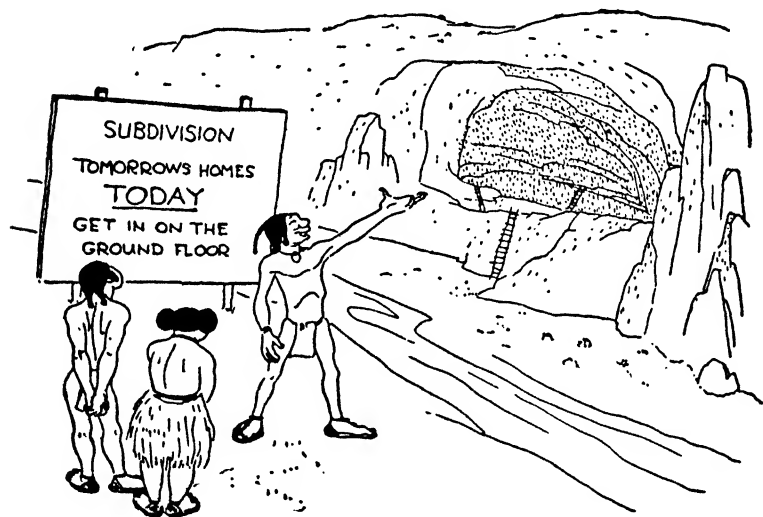
Whatever the cause, some of these cave dwellers of western Texas started out to explore the country to the west, and the Southwest began to hum with activity as this first drift of Texans to Arizona got under way, a migration which is still on the move. These early Texans, however, were not cow hands (there were no cows), or sheepherders (there were no sheep), nor did they speak with a southern drawl (there was no Mason-Dixon line). They came from the caves in the Rustler Hills, the Guadalupe and the Big Bend, but, when they crossed the Rio Grande, they became what we know as Basket Makers.

They moved into northern Arizona as ants invade a larder, and when all the caves in the red cliffs had been occupied they started subdivisions in the Four Corners, where Arizona, New Mexico, Colorado and Utah meet.

Here they settled down, building their square huts, or jacales, with walls made of sticks and grass, covered with mud, and a door in the side; digging storage pits or cists in the floors of their caves to store their food or bury their relatives; coiling their baskets; twining their bags; twisting strips of rabbit fur to make blankets; whittling their spear throwers and throwing sticks; shaping their dart points; cultivating corn and squash.

The craving for a solid roof over one's head was undoubtedly the chief reason why the Basket Makers preferred caves in which to build their huts. Caves are more numerous in the red sandstone cliffs of northeastern Arizona than in any other part of the Southwest, and the Basket Makers swarmed into Red Rock Valley, the canyons of the Lukachukais, and those to the north of the San

Juan which drain down from the foothills of the Rockies. Nevertheless, while caves may have been the lure which drew them to the Four Corners, it also seems probable that this region offered the additional attraction of being unoccupied. Up to the present, no one has been able to find a trace of anyone earlier than a Basket Maker in this part of the Southwest.



When we speak of the people who lived in southern Utah, southwestern Colorado and northeastern Arizona, some 2000 years ago, as "Basket Makers," we do not mean that these were the only people who were making baskets at that time. It is merely the name with which they were dubbed by an archaeologist 40 years ago when he found some baskets in a cave in Grand Gulch, southern Utah, and did not know who had made them.

It is true that they made good baskets, but there were many tribes, particularly in California, who made much better ones;

nor were their baskets the best work of the Basket Makers. They made very fine and lovely twine-woven bags in several colors; their sandals were unique in their weaves and patterns; their woven belts of white dog hair were beautiful examples of handiwork; in fact, all the things they made were well and carefully fashioned. And not the least of their achievements was their choice of the red sandstone cliffs of northeastern Arizona as a place to live.

To understand the romance of Southwestern archaeology, you must take a camping trip into the Basket Maker country—Canyon del Muerto, Tsegi Canyon, the caves of the Lukachukais or Red Rock Valley—all in northeastern Arizona, or some of the canyons in southern Utah or Colorado. And, when the dishes have been washed and the fire is going, think to yourself that you are smelling the same kind of juniper smoke that a Basket Maker smelled 2000 years ago; that you are looking at the same red cliffs, the same stars and sky; and try to put yourself in his place.

You have a busy day ahead of you tomorrow. You must be down at the water hole by dawn, if you are to get another shot at the big buck you missed this morning. . . . Your atlatl (spear thrower) has been hitting low lately, and the balance weight needs adjusting (you had better attend to this before you tuck down). . . . You need at least three or four new dart points to replace those you smashed on rocks because of shooting too low. . . . Your hair needs washing after yesterday's dust storm. . . . You ought to finish up that pictograph of yourself, showing your fine square shoulders. . . . Your wife is pestering you for more rabbit skins to finish the robe before cold weather, and you want to know why in blazes she hasn't made that new pair of sandals when she knows that your old pair is worn out. . . . If she didn't take so long fussing over her fancy patterns, she would have had

them done by this time. . . . You ought to find a good piñon log to prop up the roof where it is sagging (he did; we found that he had cut it in A.D. 217). . . . But with so much to be done, the



night is peaceful and still; the men in the cave across the canyon are starting a sing and you guess you will stroll over and join them.

Or, perhaps, you are a woman and you are secretly hoping that the old man misses that buck tomorrow morning. Your jaws are still lame from chewing the hide which he brought home last week. . . . How on earth does that woman up the canyon fix her

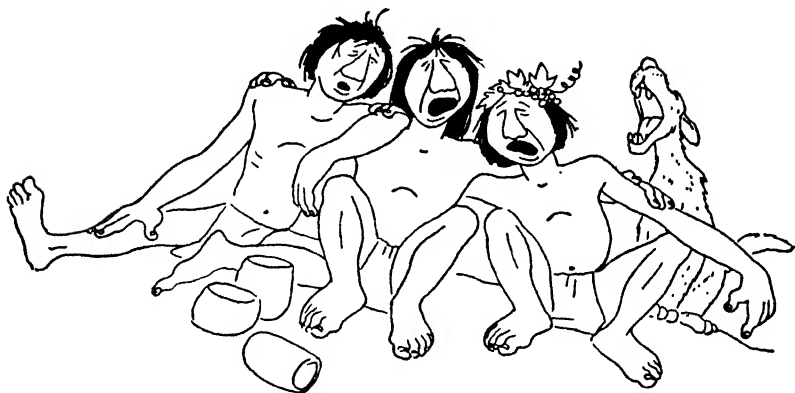
hair? Those big rolls over her ears look just like squash blossoms. . . . You know the old man needs new sandals, but both the boys need loincloths, and you haven't had a new skirt since last year. . . . You must remember to clean out the storage cists so that they will be all ready for the corn. You wish to goodness the men would choose some other place to bury their relations; we need



every cist we have. . . . Someone has burned the bottom out of your best parching tray, and when you make another you think you will try this new stunt of lining it with mud to protect it. There seem to be lots of new ideas nowadays. You wish your old man wasn't so sot in his ways, and that he would try to make a bow and arrow, such as some of these other men are making. It looks to you like a good thing, but it's hard to teach an old dog new tricks. You guess you're just as bad, as it certainly sounds silly to you to try and make a blanket out of feathers instead of fur. . . . You wonder how that woman up the canyon manages to fix her hair; you think you'll see what you can do while the old man

is over at the sing. . . . Heavens! what a noise they're making; this new brew must have quite a kick! . . . You wish you could see how your hair looks.

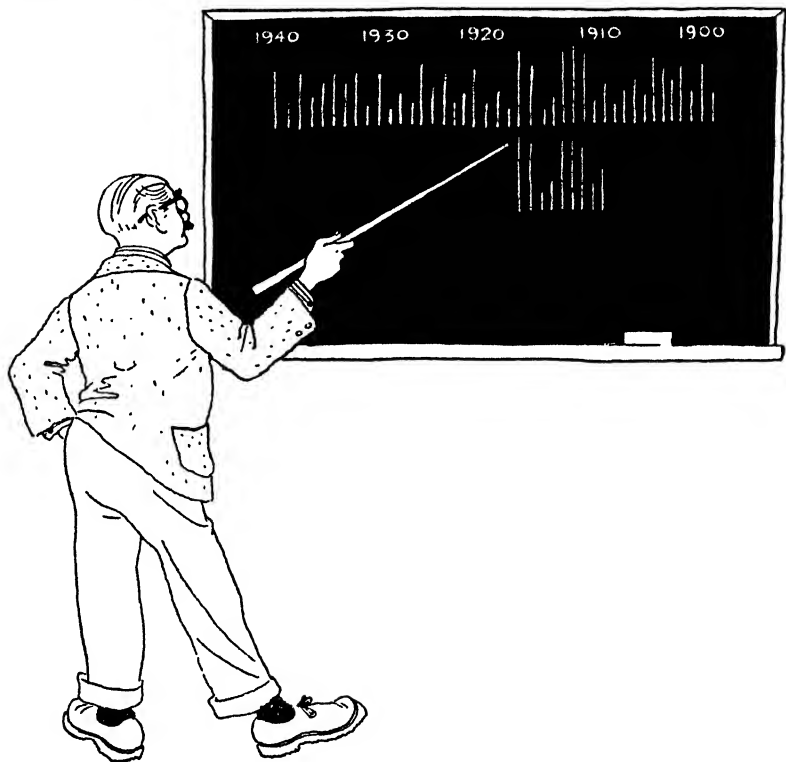
Thus, the Basket Makers at A.D. 217, but before we go any further we should tell you about dating by means of tree-rings, as this is one of the chief reasons for introducing you to the Basket Makers, since they have provided us with the beams from which we have obtained our earliest tree-ring dates.



As you undoubtedly already know, most varieties of trees add a thin layer of wood to their trunks, branches and roots each year. This is the so-called annual ring, and it varies in width from year to year, depending upon the conditions which affect the growth of plants.

These conditions, which are primarily climatic, are usually uniform over fairly large areas during any one year, and the result is that all of the trees within such an area respond by adding a broad or a narrow ring, as the case may be. Taking the Four Corners district as such an area, the sequence of variations of annual ring widths is consequently pretty much the same on all of

the local pine, piñon and fir trees. By measuring these rings on an old tree known to have been cut down, say in 1940, it has been possible to draw a chart of the sequence of all of the ring widths



from 1940 back for 500 years or more. When such a chart has been confirmed and reinforced by the measurements of the rings on a large number of other trees from the same area it can be used as a master chart, against which the sequences of trees of unknown date from the same region may be compared.

In making such a comparison, the chart of the individual tree which is to be dated is moved along the master chart until the

patterns can be seen to correspond; then you note the date at which the outside ring of your specimen occurs, and this is the year in which your tree was cut down.

To extend the sequence or chronology backward in time, it is then simply a job of overlapping charts. You begin with modern trees of which you know the date of each ring. Then you get specimens from beams in old missions, or from such pueblos as Oraibi or Acoma or Zuñi, which have been lived in since the days of the Spanish Conquest. Then you range the country far and wide seeking caves and cliff dwellings, and from posts and rafters you obtain cross sections or cores, and each new specimen either reinforces what you have already done or reaches down into the past. It is a never-ending job of working from the known back into the unknown. At present, our known chronology for northern Arizona begins at today and is continuous back to 54 B.C.; but you must understand that 54 B.C. was not the date for a ruin, it was simply the center ring of a beam, the outer ring of which dated at A.D. 295. An actual date, of course, can only be obtained from the outside ring, since this was the last ring to form before the tree was cut down.

And there is the outline, a little oversimplified, of how to date by tree-rings. If you have any antique furniture, and you are not quite sure that it is genuine, all that you have to do is take a cross section from the leg of a Chippendale chair, or saw off a slice from your Hepplewhite table so as to expose the end grain, and measure the rings and match the patterns against a master chart of the eighteenth century. If they agree, the pieces are genuine. Some day we are going to try the method on some of the coffins from the tombs of the Pharaohs, but, although our intentions are of the best, we have been delayed, because museum curators are often quite fussy about their old piles of junk.

So, in the year 217, a Basket Maker worked himself up to the point of going out and cutting down a piñon tree, and used it to prop up a roof. The fact that he did not haul in a dead tree which had died in 217 but was not used until much later, is shown by a considerable number of other beams which were cut down comparatively soon afterward. Up in the Falls Creek region in south-



ern Colorado, other Basket Makers built huts for themselves in A.D. 242, 268, 308, 310, 312, and 330, and in Canyon del Muerto in northern Arizona, huts were being stuck together in Mummy Cave by A.D. 295.

When you stop to realize that beams which were exposed to the weather have all decomposed, and that many of those which were protected in the dry dust of caves were burned or otherwise destroyed by later people, it is cause for wonder that so many of these old logs have lasted through the centuries. They help to confirm the impression that there was a relatively large popula-

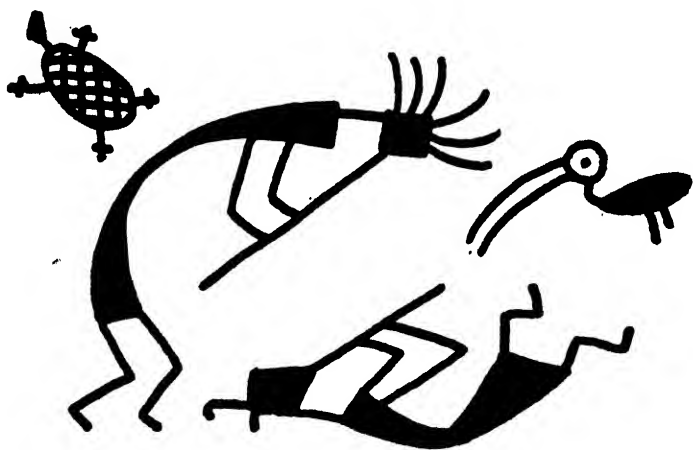
tion of Basket Makers in northeastern Arizona during the early part of the Christian Era, compared with southern Arizona during the same period, where sites are rather few and far between.

We have mentioned some of the things that were made by these early Basket Makers, but the handicraft for which they are justly famous was sandal making. Back in Texas they had been satisfied with a very simple type which consisted merely of a reed bent into a loop, the sole made of yucca strips laced back and forth across the loop—the fishtail sandal, so called because the crossed ends of the reed resemble the tail of a fish. When they had been living in Arizona for some years, however, they had their sandals made to order, and they were really works of art. The earliest type had square toes with a heavy fringe, which must have looked something like those worn by Henry VIII. Then they really let themselves go and made sandals with 30 or more warp threads. They wove patterns on both the upper and lower surfaces of the sole. These are so complicated and show such a mastery of weaving technique that it seems almost certain that the Basket Makers must also have had knowledge of the loom. (We are still waiting for a tree-ring date for the earliest actual occurrence of the loom.) Familiarity with weaving processes is also shown by their adroitness in spinning yarn, as in their beautifully made belts of white dog hair.

All in all, the Basket Makers were an extremely interesting people, and there is still much to be learned about them. Their habit of living in caves has preserved the most perishable details of their culture, from the finest threads made of milkweed fiber or human hair, to their own bodies. These by the way, were not intentionally mummified but were simply desiccated by the dry dust in which they were buried.

Not the least interesting feature of Basket Maker culture is

that it was quite distinct. There is an obvious similarity in some details to things which were made by the cave dwellers of western Texas, such as spear throwers, throwing sticks, the habit of wearing sandals, and the cultivation of corn and squash. There are some resemblances to the culture of peoples as far west as Santa Barbara, such as the intricacies of coiled basketry. Their flint industry sometimes suggests that of California, southern Arizona or Texas at the same period. But at the time with which we are dealing, a few centuries before Christ, all that we can say about the Basket Makers is that they were long-headed farmers who were living in mud huts with side doors, and growing corn. Never having heard of pottery, they were using baskets lined with mud or made watertight by coating them with pitch or resin. Knowing nothing of a bow and arrow, they used spear throwers and all the other tricks and trades which they had inherited from their Australoid ancestry or borrowed from their northern Negroid neighbors.



The Changing Order

FOOD GATHERERS TO GARDENERS TO FARMERS

SLOWLY, ALMOST imperceptibly, a point has been reached in the discussion of the development of native American cultures where every individual is required to form an important and independent decision. We can probably all agree that men with certain physical features came over from Asia, that they did certain things in certain ways in certain places after they got here, and that it all happened a long time ago. It would not make much difference, however, if you object to these men being called Australoid or Negroid or Folsom; or if you think that flakes were pressed from their blades when we say they were banged; or if you are convinced that they reached here 15,000 years ago when we think it was 25,000. The tools and the skulls will not change because we do not agree, and if your version of what happened makes better sense than ours we shall be glad to yield you our soapbox since, in the last analysis, the whole study of anthropology boils down to the question of whether our interpretations of evidence are sufficiently logical and valid to be strung together into a lucid and continuous history. There can never be such a thing as absolute proof, and this tale is merely our way of interpreting the evidence.

Many years had passed since the pioneers of the second migration had filtered down into the western plains, and with the

passage of time there had been changes both in the physical appearance of the people themselves and in the things they made. Not much was left of the old Negroid strain, although Dixon found some in the modern Algonquin, and what there was survived chiefly in some of the western groups, notably amongst the Basket Makers. The descendants of the immigrants who had settled along the upper Mississippi and in the eastern woodlands could not therefore be regarded as Negroid, and, as fluted points had long since gone out of style, they could not be called Folsom, so there is a question as to how to refer to the people who had replaced the Folsom hunters.

The people in question have been described as Food Gatherers, a way of life which was one jump ahead of an existence entirely dependent upon hunting and one jump behind an out-and-out agricultural economy. Their culture included a wide range of rather heavy, ground stone tools which were not the sort of things to be carried easily from one overnight camp to another, and so they had become more or less sedentary and lived in villages. They occupied those sections of the northern half of the United States which had formerly been the domain of hunters of the Folsom school and which later were settled by various Algonquin tribes.

There were actually three layers of occupation. At the bottom were the fluted points and other remains of the Folsom hunters. In the middle were the polished celts and other ground stone tools of the Food Gatherers. On top was the carry-over of the Food Gatherers plus pottery which was the trade-mark of Algonquin tribes. It is quite possible that the earliest layer grew up and developed through the middle and up into the latest without any abrupt break, merely changing by slow degrees as new immigrants and their cultures arrived and were absorbed.

However this may have been, we have now to deal with a situation in which changes admittedly had taken place and in which it is necessary to realize that the upper Algonquin layer was separated from the lower Folsom layer by several thousand years. So, to emphasize these differences, we are now going to introduce you to the Algonquin as the third migration to reach North America. It should be noted, however, that we are specifying North America and not the New World as, from now on, the distinction between North and South America will grow in importance. The reason for this will be apparent when it is realized that there is no evidence whatever that anybody or anything which could be identified as Folsom or Algonquin ever reached Mexico or Central or South America.

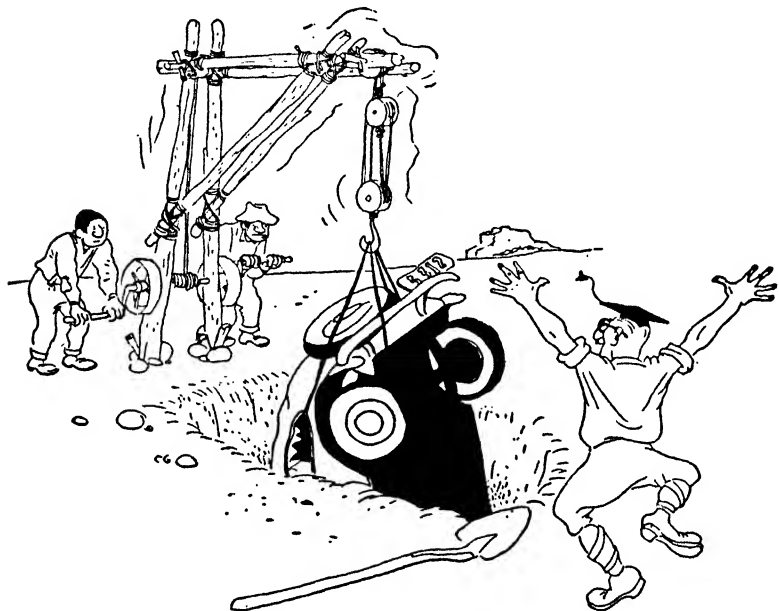
Here are some of the things for you to consider in reaching your decision:

In the Ozarks, the lower levels of the bluff dwellers' storage pits contained no pottery of any kind. The upper levels of the same pits show that pottery had come into use.

Along Sterns Creek, in eastern Nebraska, the people do not seem to have heard about corn but they had reached the stage of horticulture and were making pottery, some of which shows that the surface had been patted with grass-wrapped paddles.

Farther west, if you had followed the Republican River, you would have found villages where the people were living in mud-walled houses and making cord-marked pottery. The fact that they lived in villages and made pottery implies that they were farmers who were living a sedentary life, but they also undoubtedly hunted buffaloes when they felt like it. If a man's wife asked for a couple of pounds of lean meat to make soup, all the man had to do was to find a herd of buffaloes, start a prairie fire so as to drive the herd over a cliff, carve off what was needed, and work

up an appetite by walking home. Then, while the meat was bubbling in the boiling-basket, he had plenty of time to think of things that he needed, and he may have decided that life would be simplified by inventing a taxicab. No one has yet succeeded in



finding his taxicab, but Dr. Phuddy Duddy has repeatedly assured us that failure to find what you are looking for is the best evidence that it must be there—as witness the situation in Mexico and Central and South America.

When the Big Bend cave dwellers left their caves in western Texas they knew nothing of pottery, but, by the time they had settled down in northern Arizona to become Basket Makers, the women were making mud platters, the outer or under sides of which show the impressions of the coiled basketry trays in which

they were molded. These platters were sun-dried but not fired. They contained no tempering material but were reinforced with bast or other fibers to prevent cracking.

No one knows just when the change occurred, but, a few years later, well-fired pottery was being made by the Basket Makers of northern Arizona, northern New Mexico and southern Colorado.

East of the Mississippi, especially in central New York, a people who had reached an advanced horticultural status began making pottery, the surface of which shows that vessels were shaped by patting with a fabric or cord-wrapped paddle.

Other examples of the same transition could be cited, but there is no need to argue that pottery was being made since the evidence is both abundant and imperishable; the only problem to be solved is how did it come to be made?

Did some one individual in Nebraska or Arizona or Arkansas or New York discover that pottery could be made by baking clay, and did he or she then pass the idea along to neighboring people?

Or did some one individual in Nebraska and another in Arizona and another in Arkansas and another in New York each discover how to make pottery quite independently of one another?

Or did some of the people who were coming over to North America from Asia bring knowledge of pottery making with them and diffuse such knowledge to other peoples?

Many Inventions and Discoveries

BY AMERICAN INDIANS—OUT OF THIN AIR

IT IS GOING to be necessary for you to make up your mind as to how various tribes in the northern half of the United States gained the knowledge of how to make pottery. It is all very simple.

One way to begin is to sit in a darkened room, with your mind a complete blank, and remain there until you discover that an invention is needed. The discovery must, of course, be concerned with something of which you have never heard, and of which you have never felt the need until your psyche begins whispering that all is not as it should be and that what you really need is a gravy boat.

Having made this discovery, it is now merely a question of inventing some sort of a satisfactory watertight container. If you happen to have any Indian blood in your veins you should already be familiar with such things as half gourds, wooden and stone bowls, great horn spoons, dispossessed skulls, and bark buckets. So it is no use to try to rediscover any of these. About the only thing left is for you to decide that clay is the only salve capable of soothing your cosmic itch, and so you may delude yourself into thinking that you have therefore solved your problem by inventing pottery. There are still one or two questions, however, which need to be answered.

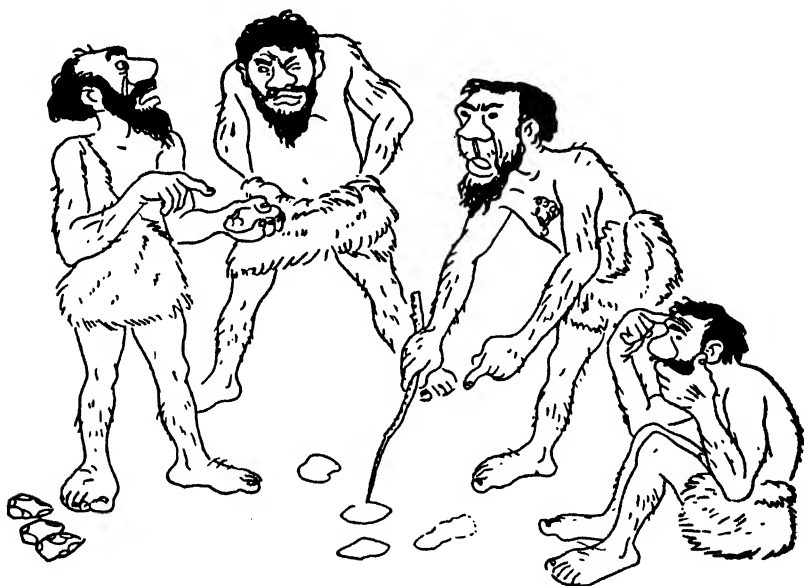
Was the discovery or invention of pottery so simple that the process of origination could reasonably be expected to be duplicated at different times, in different places, by different peoples?

Regardless of how pottery originated, who were the people that made it, and where did they live?

Was there any other pottery anywhere in the world which was similar to that under consideration?

If so, did the people in question have access to such pottery?

If they did, what evidence is there to show that they did not bring such knowledge with them when they moved into North America?



You must begin by realizing that in the old, old days human beings were not very bright, and it often required a good long time before anyone turned out an invention. In fact, during the

days of the so-called Chellean culture of the old Stone Age, men went for something like 200,000 years before they changed their ideas of how a fist ax should be shaped by banging two rocks together. So you must not be surprised to find that men with perfectly good human brains and knowledge of fire for cooking and warmth had been mucking around with clay for 500,000 years or more before someone found out that it could be hardened by fire. But do not delude yourself into thinking that this was also the discovery of pottery. It wasn't.

The generally accepted idea as to how pottery was first discovered is that someone lined a shallow basket with mud to protect the fibers; this contraption was then accidentally dropped into a fire; the basket was thus destroyed; the mud was baked; and the result was a pottery tray which had obvious advantages over the basket. It sounds like a good idea, but we doubt if the fellow who thought it up had ever made a pot.

Incidentally, it might not be a bad idea if some of the individuals who talk so glibly of pottery having been independently discovered—here, there and everywhere—should be tested by being required to make a pot with their own hands. They could start with the great advantage of knowing that clay can be hardened by fire, but thereafter they would have to work out the problem unassisted.

Would they know where to find a bed of pure clay? (We don't; do you?)

Would they recognize it if they found it?

Having found some clay, how would the pot be formed? By molding? Coiling? Paddle and anvil?

Could they then invent something to prevent the pot from splitting and cracking when put in a fire?

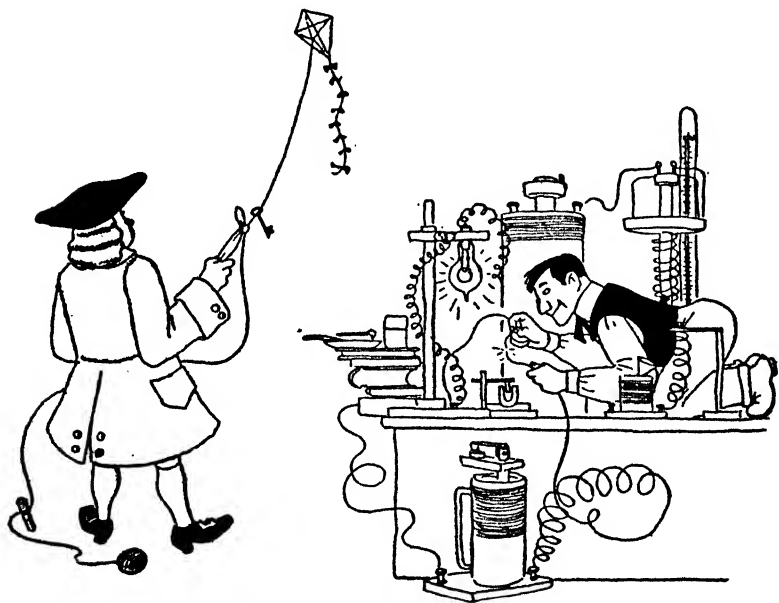
Having invented the use of sand as a tempering material, the

rest would be simple. It would then only be necessary to find out how much sand to add to how much clay. And how much water to use, so that the clay would neither collapse nor crumble. Then how to build a fire that would be hot enough to bake the clay, but not so hot that the pot would disintegrate or collapse.

You may have noticed in the above section that we have spoken of the *discovery* of pottery and the *invention* of tempering material, and this distinction needs to be dealt with before we go any further. It is a tricky subject, and, in order to avoid any possibility of being accused of coining definitions to suit our purposes, we will quote from Roland B. Dixon, a leading opponent of the theory of diffusion:

"It is sometimes difficult to draw a hard and fast line between discovery and invention, but for the purposes of this discussion, we may make a primary distinction on the basis of the presence or absence of purpose. Discovery would then be limited to the unpremeditated finding of something new, whereas invention might be defined as purposeful discovery. It is clear that the two forms grade into each other by imperceptible steps, ranging between the purely accidental stumbling upon something previously unknown, through a more or less painstaking search for the same, to a purposeful experimenting with existing materials leading to the creation of a wholly new thing, which would never have existed but for this conscious human endeavor. The accidental discovery of a new edible plant might serve as an example of the first; the search for a new and stronger kind of vegetable fibre would illustrate the second; whereas the utilization of the elasticity of wood in the construction of the bow would represent the third. True invention thus differs strikingly from discovery in that its result is actually a creation of something new; in discovery the thing discovered was already existent. We might then

more accurately redefine discovery as the accidental finding of something previously unobserved, whereas invention is the purposeful creation of something radically new. It must, of course, not be forgotten that both discovery and invention have non-material as well as material results, for one may chance upon a new idea or invent a new philosophy."



These definitions will, we hope, help to clear up any doubt in your mind as to the significance of discovery as distinct from invention. But it will be necessary for you to realize that the term *duplicate independent invention* cannot be used to also include *duplicate independent discovery*. This is well shown in the case of pottery, which we have been discussing. If it is right to insist that the origin of pottery in the New World had no connection

whatever with that in the Old World, then one must begin by postulating two duplicate independent *discoveries*, the fortuitous and unpremeditated discovery in each hemisphere that clay can be hardened by baking.

Having made these duplicate discoveries, someone in the Old World and someone in the New World would thereupon each experience the need to make a pottery vessel, and each would then purposefully and independently invent the addition of sand as tempering material to prevent the clay from cracking when baked.

This would be followed, in each case, by the duplicate need for pottery vessels in the shape of bowls, jars, pitchers, ladles, cups, flasks and effigies, and each of these shapes would be duly invented independently in response to "the purposeful experimenting with existing materials leading to the creation of a wholly new thing, which would never have existed but for this conscious human endeavor."

Now after all this long rigmarole you may think that we have drawn an exaggerated picture of the theory of *duplicate independent invention*, but not so. All that we have done is to point out the many and various duplications that would be necessary *if* the origins of New World pottery had no connection with those of Asia, Africa and Europe. It has always been customary for the advocates of autochthonous American origins to brush the subject aside with the sweeping generality that pottery was independently invented in the New World and to imply that only one trait was duplicated. It seems to us that this dismissal is much too abrupt, and since we do not believe in the theory we have shown that this duplication actually amounts to:

The duplicate, fortuitous and independent discoveries that

clay could be hardened by fire, provided the clay did not contain too many impurities and that the fire was hot enough but not too hot.

The duplicate, purposeful and independent inventions that temper can be added to prevent the clay from cracking, provided that just enough but not too much was added.

The duplicate, purposeful and independent inventions that pottery vessels could be shaped in the form of bowls, jars, pitchers, ladles, cups, flasks and effigies.

To these you can add a number of techniques and refinements, each of which has been found in both the Old and New Worlds and each of which, according to Dr. Phuddy Duddy, must have been fortuitously or purposefully discovered or invented quite independently in each hemisphere:

Red ware with polished surfaces and black interiors.

White or cream-colored surfaces with painted designs.

Red or black surfaces with painted designs.

Gray or brown mat surfaces with textured or cord-marked patterns.

Shaping large jars by the paddle-and-anvil method, in which a stone anvil is held against the inside while the outside is patted with a paddle.

Building up the sides of pottery vessels by means of a ribbon or coil of clay laid on in bands or as a spiral.

Applying a coating or slip, usually of a contrasting color, to vessel surfaces.

Incising patterns on sun-dried surfaces before baking.

Engraving patterns on surfaces after baking.

Embossed ornaments and human features on vessel surfaces.

Rubbing paint of a contrasting color into the incised or engraved patterns.

The use of lead glaze in painted decorations.

The making of tripod and tetrapod trays.

Various types of handles and the treatment of rims for suspension.

Pottery spindle whorls.

Clay figurines with "coffee-bean" eyes.

Baked clay tiles.

Stamp seals.

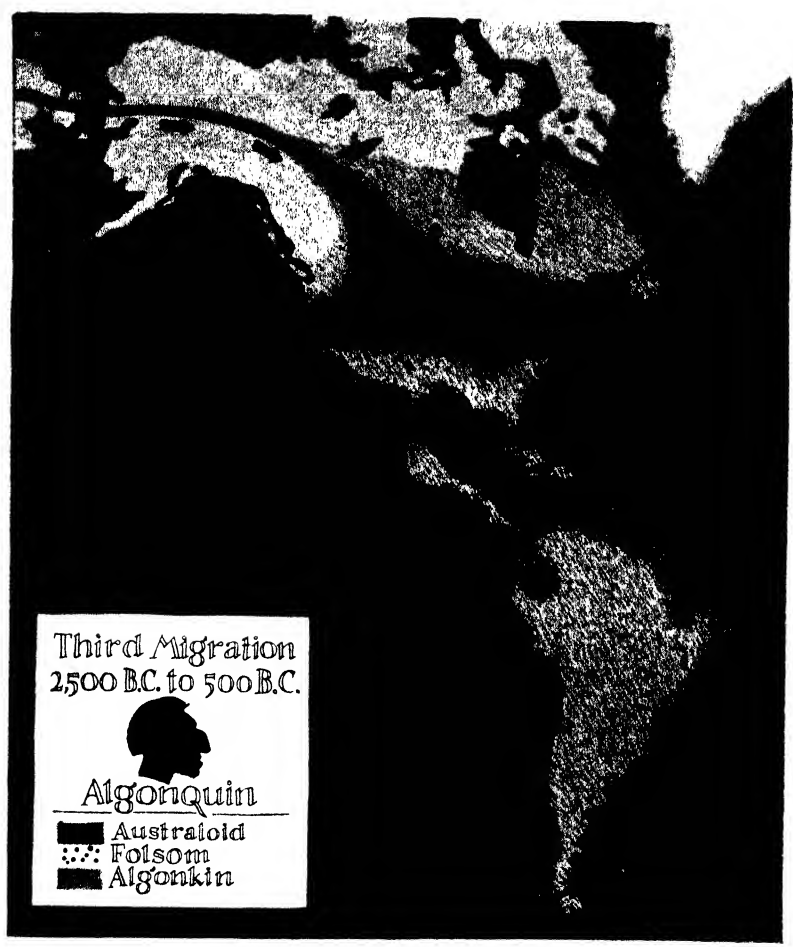
Cylindrical seals.

Wheeled toys of pottery.

Looking over this list, which could be greatly extended, it may seem to you that many of these items are the results of the so-called "limitation of technique," which is just another way of saying that if one doodles or scribbles long enough the whole range of design and decoration will be exhausted. This is a good place to emphasize, however, that the people who made cord-marked pottery did not paint or polish their vessels, that many people who painted their pottery did not polish, and that those who painted or polished did not use cord marking—and yet there are separate areas of painted, polished, and cord-marked pottery in both Asia and the Americas.

To our admittedly simple minds such a series of analogies, depending upon so many chance discoveries and purposeful duplications, is an absurd premise upon which to build a theory of the origin and evolution of native American cultures. But, in addition, there is the bald fact that the theory is based entirely on the end results, no one having yet succeeded in finding evidence of

the original or evolutionary stages which must necessarily have led up to the end results. Investigations which for many years have been carried on to uncover just such evidence have not only failed in their purpose but have actually tended to refute the theory by shortening the pottery periods in North, Central and South America. One begins to wonder if the real problem is not so much a question of the cultural ability of American Indians as of the inability of American anthropologists to invent independently an explanation of the origin of native American cultures based on evidence rather than unsupported dogma.



Third Migration
2500 B.C. to 500 B.C.



Algonquin

■ Australoid
⋯ Folsom
■ Algonkin

The Third Migration

THE COMING OF THE ALGONQUIN

COMING NOW to the question as to who the people were who first made pottery in North America and where they lived, we would say that the problem centers on those tribes in the northeastern woodlands who, during historic times, have been making cord-marked pottery, and who collectively have been known as the Algonquin family. This brings us down to the more specific question of trying to decide who were the Algonquin, but it is only fair to post a warning that in tackling a problem as difficult and as complicated as the origin of the Algonquin there is an easy way out and a hard way in.

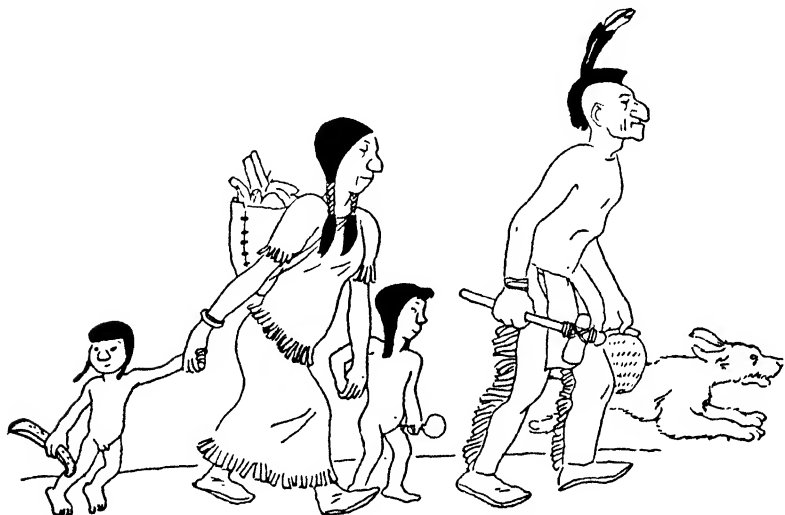
The easy way out is to admit frankly that you are not interested in Algonquin origins, in which case you accept Dr. Phuddy Duddy's explanation that there may be a possible connection between the modern Algonquin tribes and the prehistoric culture which is found in the same region, but that the case is not proved and will require a great deal more careful investigation, et cetera, et cetera, so in the meantime let's talk about something else.

The hard way in is to follow us as we lead you into strange new worlds where Duddies fear to tread. Here is the situation:

Since the days when the first colonists landed in Virginia, we know that the Atlantic seaboard has been occupied by various tribes of the Algonquin family—Mohican, Delaware, Shawnee

and many others. They all looked more or less alike. They all spoke different but related languages of the same family. They all lived the same sort of life. And they all did pretty much the same things in the same way.

Then, two or three centuries later, when archaeologists began rooting around in this region, they began finding things. Some



were like those made by living Indians, others more ancient and of unknown origin. So far, so good. It seems to be fairly simple, but it isn't. Admitting that some of the prehistoric things which have been included under the name of the Woodland culture are ancient Algonquin products, how far back in time can we go in attributing the early cultures to ancestral Algonquin tribes, and how far in space can we go in saying that similar cultures in other areas were also the work of Algonquin peoples?

The first step is to find out where the people are with whom we have to deal. So we start in Maine with the Penobscot, drop down

through New England to the Mohican of Leatherstocking fame, into Pennsylvania with the Delaware, follow the Ohio River through the range of the Shawnee, into Illinois with the Kickapoo, skirt Lake Michigan through the Sauk, Fox and Menominee, and so off to the west by way of the Ojibway and the Cree, to the Rockies and the Blackfoot, in and over the mountains with the Kootenay, reach the Pacific coast through the Salish, and drop down into California to the Wiyot and Yurok.

Some of these names may surprise you, particularly those west of the Mississippi, as you have not thought of these people as Algonquin. But there they are, stretched in a continuous chain across the continent with one end hooked on Cape Cod and the other on Cape Flattery, just south of Vancouver; and the only explanation seems to be that tribes which have been said to be Algonquin because they spoke Algonquin, were contiguous and continuous from Puget Sound to Buzzards Bay, unless, of course, you lean to the idea that Algonquin phonetics are of such a kind that different peoples spontaneously break out into Algonquin when they need to express themselves.

With this cordon of Algonquin tribes pinned down to localities where they have been identified by our leading ethnologists, we can now turn to something else which is known: a peculiar kind of prehistoric pottery which shows the imprint of twisted cords or of cord-wrapped paddles used in patting the surfaces. Starting in Maine, the trail leads down through New England to New York and Pennsylvania, Ohio, Illinois, Iowa, Nebraska, Montana and Idaho, reaching the Pacific coast through Oregon.

Now this is really just a test case to find out how you react to suggestive evidence. We hope that you have jumped to the conclusion that there was a direct connection between the old and the new, that the modern Algonquin are the descendants of the

people who made the cord-marked pottery, or, putting it differently, that cord-marked pottery was an ancient Algonquin product. Because in this case we have the word of the early colonists that the New England Indians were still making this kind of



pottery in the seventeenth century, and there is no doubt about the connection or the continuity of culture so far as New England is concerned.

And now, just in case someone may have been trying to persuade you that each of these Algonquin tribes independently invented its own pottery, we will add a few little gadgets to round out the picture.

Polished stone celts and adzes deserve a prominent place as these have been found in Algonquin sites with cord-marked pottery all the way from New England to Oregon.

Twined basketry follows the same course; also tumplines which were used to help in carrying large burden baskets.

Twine-woven bags are a valuable addition. Those made by the Algonquin in New England, in black and orange or other combinations of gay colors, seem to have been exactly the same as those made by the Basket Makers in Arizona.



Bark buckets were typically Algonquin from Maine to Oregon. In fact, give an Algonquin lady some birch bark and she will make almost anything for you, from a canoe to a Christmas card.

Most of the things we have mentioned are suggestive of feminine activities. The men undoubtedly ground the celts to shape, but whether they or their women chopped down trees is another matter. We will compromise by saying that when the celts were used as tomahawks they were wielded by men.

We might add also that it was the Algonquin who first introduced us to the powwow, a male institution where problems are solved by talking them to death.

At this point we pause and take time out to look around and see what has happened. Instead of the familiar Algonquin of our childhood—King Philip, Pocahontas, Deerslayer—we are mixed up with a lot of queer names—Kootenay, Cree, Salish—, some of which we never heard of before. But where should we stop? When is an Algonquin-speaking Indian who made cord-marked pottery, polished celts, twined basketry, bark buckets, et cetera, not an Algonquin? And if not, why not?

Looking at the situation from an entirely different point of view, we suggest that in all probability the one and only time that pottery was ever invented was in Africa, and not improbably in Kenya Colony. Some years ago J. S. B. Leakey found two shards of a soft gray pottery with a textile impression in a cave deposit which he called the upper Kenya Aurignacian, so implying very respectable antiquity. At a later date there is further evidence from Egypt, where pottery was known in the Tasian period which has been variously estimated as dating from about 7500 B.C., although J. L. Myres places pottery in Egypt as far back as 10,000 B.C. It makes very little difference as far as we are concerned as we now have nothing to do with the polished red pottery which was made in Egypt. We mention it merely to draw attention to the fact that pottery had been in use in Africa for a long time before it was known in Europe.

The pottery which we are going to trace was a gray or black ware with surfaces textured by the imprints of cords, basketry or textiles. It was often decorated with patterns that had been incised or pressed into the clay with a roulette before baking. Pottery of this general type has been found in several parts of Africa, outside of Egypt, and it looks as if some of it found its way into Spain at some time from 2500 to 2000 B.C. Here it was developed into a specialized form, known as beaker ware, with emphasis on horizontal bands of incised patterns but with some cord impressions. From Spain we are off to a good start, with gains around the right end of the Pyrenees and up the valley of the Rhone. Then we go over the Vosges into Bavaria, with one group following the Rhine northward and eventually reaching England at about 1800 B.C., while the main play was eastward into Moravia and Silesia where Myres says that the beaker folk were stopped, momentarily, for what might be said to have been a first down.

At this point, time was taken out for some replacements—some Danubian, some Tyrolean, some western, some eastern and southeastern—so that the new line may have looked, and their names may have sounded, like a prehistoric Notre Dame team. Following this infusion of new substitutes with a marked increase in cord-marked pottery there were further gains to the east, and for these we rely upon pottery at Gila Pueblo which we have been gathering together from many different sources—from Poland, from the province of Kazan in Russia, from Lake Baikal and the province of Amur in Siberia, and from the shell heaps of Japan, with a number of polished celts, all said to be Neolithic.

From China, the information is both more abundant and more specific. In his *Children of the Yellow Earth*, Dr. J. G. Andersson describes the early culture of northern China and illustrates cord-marked pottery with conical or pointed bottoms, resembling

beaker ware on the one hand and Algonquin on the other, polished celts and adzes, and even some peculiar storage pits, broad at the bottom, narrow at the top, which he found to have been identical with similar structures in Europe (Alsace), and also with those which were excavated by the Peabody Museum at Madisonville, Ohio. Other peculiar analogies were the tripod pots which Andersson found in Honan and those which have



come out of the Hopewell Mound in Ohio. The estimates of the dates of this Chinese culture vary from 3000 to 2000 B.C.

The make-up of the team may have changed, but it looks like another first down.

A forward pass, across Bering Strait, completed by the Eskimo with their gray, textured pottery, celts and adzes, and so to the Algonquin and a touchdown in Maine.

Because we began this game in Africa, it does not necessarily mean that the people who carried the ball over to Spain were Negroid. It is much more probable that they were a branch of

Mediterranean stock, with perhaps a dash of Negroid to give them height. Pushing northward into France they entered the territory of Nordic peoples, who promptly picked their pockets and their brains, as has been the custom of Nordics in all ages, past and present. Then, as they moved eastward into Bohemia and Silesia, they lost more of whatever identity they may once have had in the human maelstrom which even today is still spinning on the borders of eastern Europe and western Asia.

What sort of mixture was cast out of this whirlpool to carry on to the east it is hard to say, since it must be obvious to anyone of sound mind that Mediterraneans, French, English, Russians, Siberians, Chinese and Japanese were not Algonquin. All that is certain is that similar types of pottery, *plus* the same kind of polished celts, *plus* other very suggestive traits, have been found in combination from the western coast of France, through Europe, Siberia, China and Japan to North America and the eastern coast of New England.

When the compound reached North America it became known as the woodland culture and later was identified as the product of Algonquin tribes. It is also certain that the Algonquin originally came from Asia, and it is therefore simply a question of deciding what to call these people and their culture at various times and at various stages of their travels.

Just where and how often it might be claimed that cord-marked pottery had been independently invented must be somewhat of a problem. It would also be interesting to know what sort of factor could be said to have been common to the Arctic, Africa, England, China and New York which could have prompted the need for inventing cord-marked pottery. And, when all of these questions have been answered, there is still the difficulty of explaining why the polished celt is usually found

in association with such pottery in Africa, western Europe, China, Japan, Oregon and east to Maine—not to mention bark buckets, which crop up in various places from Africa to New England.

Of course, if your mind runs in this kind of groove you can claim that *each* of these instances was an independent invention. You are also at liberty to regard each grocery store as an independent invention.

All that we have done is to string together a number of significantly similar incidents and call the final American product Algonquin. If you now wish to prove that each link in the chain was fortuitously and independently discovered, or purposefully and independently invented, it will keep you busy while we go on to more important problems.



Fourth Migration
500 B.C.



Eskimo



Australoid
Algonquin
Eskimo

The Fourth Migration

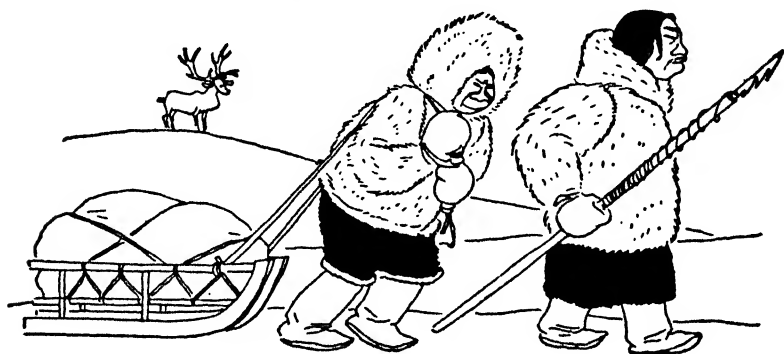
THE ESKIMO

THE THIRD migration was made up of people who, since their arrival in North America, have come to be known as Algonquin regardless of what they were called before they reached Alaska. Once they had settled down and made themselves at home they resumed the manufacture of cord-marked pottery, the knowledge of which they brought with them from Asia. They evidently came in large numbers as they left great quantities of shards and other debris in their village sites in the woodlands east of the Mississippi and through the northern tier of states from the Pacific to the Atlantic, a distribution which also coincides with modern Algonquin-speaking tribes. They probably began to arrive sometime about 1000 B.C., or maybe a little earlier, and kept coming for 500 years or so.

The Algonquin were followed, at about 500 B.C., by the fourth migration, made up of the Eskimo who show no relationship either in physique or culture to any of the three earlier migrations.

Physically, the Eskimo stand out as possessing a head which is described as disharmonic. Most of us who have long heads also have long faces; or, if skulls are broad, then faces are broad. The skull of the Eskimo, however, is rather unusually long and

high, above a broad face with pronounced cheekbones and, strangely enough, a very narrow nose. The breadth of face, the flatness caused by the protrusion of the cheekbones, and particularly the epicanthic fold which produces the slant-eyed effect characteristic of Oriental peoples, all point to a Mongoloid strain which was making its first appearance in North America.



The Eskimo possessed, also, a culture which was quite distinct from that of any of the peoples who preceded or followed them. One is given the impression that it may have originated during a glacial period, later becoming so adapted to such conditions that the authors came to prefer an arctic environment to any other. An Eskimo might well say, "This is my culture and I'm stuck with it," and it might be very difficult to convince him of the advantages of our modern civilization.

If we had to speculate on the origin of the culture, we should be inclined to favor Sollas' suggestion that the Eskimo are modern survivals of the old Magdalenian, or reindeer, culture of western Europe, which flourished at the time of the recession of the Würm glacial, some 15,000 years ago. As the climate became warmer, their ancestors may have followed the retreat-

ing ice (and the reindeer) until they wound up near the Arctic Circle. There is more to this than a mere guess since, as Sollas has said in his *Ancient Hunters*:



“When we examine the various kinds of objects which are common to the Eskimo and Magdalenians, we cannot fail to remark a surprising amount of resemblance between them in detail. There is no essential difference between the more primitive Eskimo arrow-straighteners and those of the Magdalenians; the bone arrowheads are often strikingly similar, and this similarity extends to those used by the Indians, especially as regards the character of the ownership marks; the bone hairpins

of the Magdalenians may be matched among those of the Eskimo, and the lobate ivory pendants, sometimes heart-shaped, which both races possess, are almost identical in size and form. These are used by the Eskimo as ornamental appendages to fur bags, 'housewives,' or clothing. Other little pendants of unknown use among the Eskimo resemble the Magdalenian in every respect, and this is a very important fact. It is resemblance in trivial detail which impresses us quite as much, if not more, than resemblance in general design."

He also lists such things as bone needles, barbed spearheads, spear throwers, sculpture and drawings as being remarkably alike in both the Eskimo and Magdalenian cultures.

All of which is by the way, as they do not seem to have influenced or been affected by any other American culture to an appreciable extent.

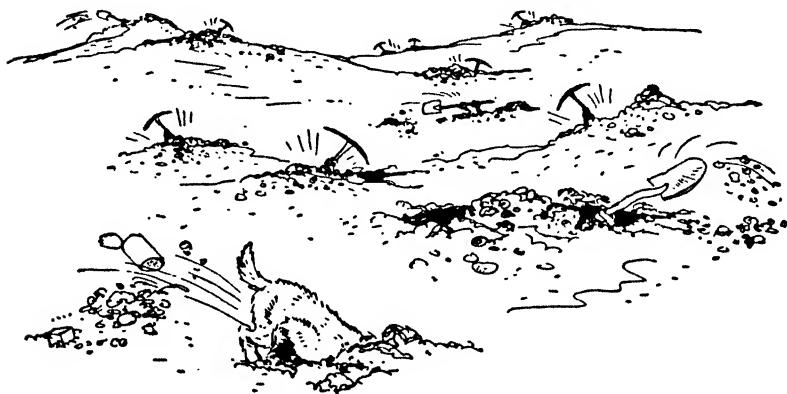
The arrival of the Eskimo along the arctic coasts marked a transition in the anthropological history of North America. It was the last of a series of long-headed migrations and the broad faces and slant eyes of the Eskimo, beaming out from under their long craniums, foreshadowed what really amounts to the beginning of a new era—a period of Mongoloid domination in lands where Mongoloid people had theretofore been unknown. It is of the utmost importance to realize that it has never yet been possible to point to any trace of Mongoloid physical features or to any evidence of Mongoloid culture to support the theory that any Mongoloids had reached the New World earlier than a few centuries before the birth of Christ. To clarify and emphasize this point, it will be well to look back over what has happened and get our bearings before pushing out into new country.

I am going to begin this review by stressing that in dealing with the populating of the New World we are attempting to trace some of the great movements of human history, of which there is no written record and which can only be pieced together by deduction and speculation based on the disconnected and fragmentary evidence of archaeology. This, however, is not as bad as it sounds because, when all is said and done, the approach to any problem should be the consideration of the available evidence and the formulation of a working hypothesis to point the way to further investigation. If such investigation produces additional evidence to support the hypothesis, well and good—go ahead and dig some more. But if your search fails to bear out your theory, or if your burrowings turn up new facts which tend to refute your ideas, you must obviously revise your hypothesis since you cannot change the facts. All of which brings us to the problem with which everyone concerned with American history is now confronted.

Up to the present time all students who have been trained in our universities have been brought up on the doctrine that the various traits that constitute the native American civilizations were duplicated here by independent discoveries and inventions after the arrival of the "Indians" in the New World. The doctrine, of course, has been merely a theory to account for certain known and established facts, and has been kept in circulation only because no more plausible explanation has heretofore been advanced. For many years investigations have been carried on by our leading universities and museums, since, if the theory was right, it was obvious that a great deal of material evidence should be lying around, as the supposed discoverers and inventors would have required many thousands of years of residence

in the New World to have achieved such results without assistance of any kind.

Year after year, as eager young archaeologists have hatched in our incubators of learning, they have run cheeping to Mexico to find the evidence which, according to the theory, must be there. And they have burrowed, and they have dug, in big sites

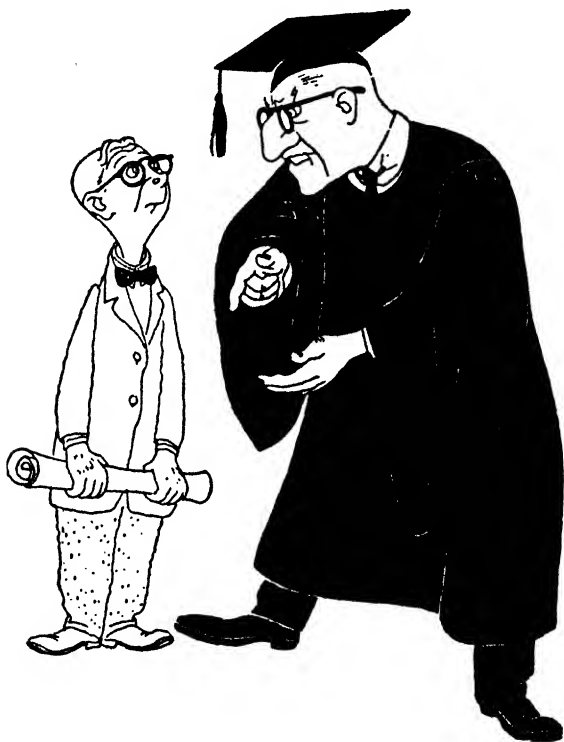


and little sites, in rubbish mounds and lava flows, and they have learned how to pronounce Teotihuacán; but instead of finding any evidence of the inventive and evolutionary stages which they had been sent to find, they have come back with the discouraging tale that nothing in Mexico was as old as it had been said to be.

So later broods have been sped on their way with the slogan, "Go to Guatemala and find it; it must be there!" And they have pulled up the cenotes, and they have pulled down the pyramids, and they have learned how to pronounce Kaminaljuyu. But instead of finding the year "One" in the Mayan calendar they have come back with the discouraging tale, "The old gray Maya ain't what she used to be; she's not nearly as old as you

said she was." Now they are being sent down to Venezuela, Colombia and Peru.

The reason for making these rather critical comments is that, in spite of the fact that the theory of independent discovery and



invention has been a complete washout as a working hypothesis it is still being taught in all of our schools, and no one of our professors has yet ventured to consider an alternative. Not only has no evidence whatever been uncovered which could be claimed to give the idea some substance, but the developments

of the last ten years have actually gone against the theory, in that the time periods during which the discoveries, inventions and evolutions should have been taking place have been drastically shortened in all of our important culture areas.



Instead of finding the remains of the farmers who had made the independent discoveries that they could not get along without pottery, metallurgy, textiles and truncated pyramids, and who thereupon fortuitously discovered and purposefully invented all of these things; instead of finding the crude prod-

ucts indicative of a beginner's experimental gropings, or the gradually improving products of evolutionary stages; instead of finding sites with stratified layers of refuse representing the thousands of years during which these brain storms should have been given concrete expression, the disciples of the doctrine, searching in the Southwest, in Mexico, and in Central and



WANTED!
\$1,000,000
REWARD

**FOR INFORMATION LEADING TO
CONFIRMATION OF THEORY THAT
THIS MAN BROKE INTO NORTH
AMERICA BEFORE 500 B.C.**

South America, have all come up against a dead end at a date that is usually estimated to have been as of about the time of Christ. Skulls of broad-headed Mongoloids who, a few centuries later, are known to have made fine pottery and to have built truncated pyramids and a lot of other things, have been found and reported from each of these areas; but, in spite of all the searching, no one has yet succeeded in finding any evidence of a broad-headed Mongoloid or his activities in any part of the New World that can reliably be dated as earlier than A.D. 1.

Under the circumstances, it looks as if the time has come when it might be a good idea to try to concoct a new hypothesis to explain how the Americas were populated and how the native civilizations originated. Let's go.

Score at the End of the Fourth Inning

NORTH AMERICA 4

Australoid, Folsom,
Algonquin, Eskimo

SOUTH AMERICA 1

Australoid

No Discoveries No Inventions No Mongoloids

WE ARE GOING to try to build up a new theory to explain how the native American civilizations originated, and a first long step in this direction is to show the number, variety and location of the different peoples who were on hand when the seeds of American civilizations first began to sprout.

In preceding chapters we have told a tale of four separate migrations, each of which was distinct from all the others in regard to both the physical appearance of the people and the culture which they brought with them. In summing them up again, I make no apology for repetition as it is extremely important to grasp the significance of these four migrations, who the people were, where they came from, when they came, the things they brought with them and the regions they occupied.

According to our version the New World was populated by a succession of various racial types, beginning with the possibility that a few Pygmy groups might have found their way over prior to 25,000 B.C. This is suggested by some rather vague

and hazy indications in Texas and eastern North America, and the dwarf stature of the Yahgan on Tierra del Fuego, which may imply that some of these Pygmies reached the southern tip of South America. We have not conceded them the rank of a true migration, however, since their status is uncertain, and even their proven presence would not affect the issues we are raising.



The first real migration was that of the Australoids who started their trek from somewhere in eastern Asia at a time that we have set as about 25,000 B.C. Besides their Australoid physical features and an Aurignacian-like flint industry, their ancient remains in southern California, Arizona, New Mexico and western Texas show that many of the traits of their culture were identical with those of modern native Australians—a combination which is found nowhere else in the world and which therefore implies an ancient connection. The date of 25,000 B.C.

not only conforms well to the dating of the Aurignacian period in Europe and Africa but also enables one to understand how people of primitive culture could have reached North America over a land bridge during a period of lowered sea level caused by glacial conditions. It would, however, make little difference to the outline as it has been drawn if the date of 25,000 B.C. should be raised or lowered by a few thousand years, just as long as such a revision is made with the land-bridge factor in mind and enough time is allowed for the Australoid migration to have been completed before the next—the Folsom—began. It appears that the Australoid immigrants were relatively pure as regards physical type, and that they had filtered in very slowly, hunting as they came. Before the movement was over they had worked their way down into many parts of South America and had filled North America up to about 34 degrees north latitude, requiring several millenniums from start to finish.

We base the beginning of the second, or Folsom, migration at about 15,000 B.C., on several counts.

First, it has been stated by Antevs, in his paper on "The Spread of Aboriginal Man to North America," that an ice-free corridor opened up some 15,000 to 20,000 years ago, along the juncture of the Cordilleran and Keewatin ice sheets, and, with the finding of Folsom remains in Alaska, Saskatchewan and Alberta along the eastern Rockies, there cannot be much doubt as to the route followed by this second migration.

Second, by 15,000 B.C., the sea level had risen, but a great deal of moisture was still impounded as ice, and even if an actual land bridge no longer existed, Bering Strait would have been narrow and would not have constituted a formidable barrier.

Third, the date of about 15,000 B.C. for the Solutrean-like Fol-

som and Yuma industries agrees well with the dating of the Solutrean period in Europe at about 15,000 B.C.

Fourth, the mushrooming of the Folsom immigrants along the northern border of the Australoid occupation makes it seem certain that the Australoid people were already established when the first Folsom pioneers arrived.

Fifth, the fact that the Folsom migration was stopped in its tracks in northern Texas and eastern New Mexico when it reached Australoid territory is borne out by the complete absence of any actual Folsom remains, or of any vestigial traces of Folsom technique, in Mexico, or Central or South America.

It again would not greatly affect the broad history of these times if the date of 15,000 B.C. should be changed by two or three thousand years, but there is less leeway as the gap between past and present is shortened. In guessing at the date, or in estimating the length of time that the Folsom migration may have lasted, allowance must be made for the slow spread of Folsom artisans across North America to the Atlantic coast, and also for the long period following the manufacture of characteristic Folsom tools. This period was marked by polished celts and small, tanged, projectile points indicating the use of bows and arrows, and preceded the appearance of cord-marked pottery. How long these movements may have taken would be hard to say, but the time that should be allowed for each stage is not as important as the order in which they occurred, and this seems to be fairly clear.

The third migration was that of the Algonquin and can be dated more closely. If you believe with us that the knowledge of making cord-marked pottery was brought into North America from Asia, then there are several milestones to serve as guides.

Admitting that the time and place of the origin of pottery will be subject for debate for many years to come, one is on solid ground in accepting a date of about 2000 B.C. for beaker ware in Spain. The approximate accuracy of this estimate is indicated by other dates of about 1800 B.C. for this same kind of pottery in Britain, and, turning east, one can follow the trail of cord-marked pottery plus polished celts across northern Asia to China to find another estimated date of 2000 B.C., so providing unusually good confirmation for the dating of this horizon of culture.

It could not well be claimed that there may have been a long lapse before the people left eastern Asia to bring their cord-marked pottery over to North America, since, by 1400 B.C., the Shang people, in northern Honan, had added casting in bronze to their polished celts and cord-marked pottery, and no trace of bronze has ever been found in North America. It is again important to recognize the fact that this third migration was also confined to the northern half of North America, no cord-marked pottery or Algonquin-speaking Indians having yet been reported from anywhere south of the Mexican border.

From all of this it would seem that the Algonquin should have begun bringing their characteristic pottery into North America sometime about 1500 B.C., but, as mistakes in chronology are almost invariably due to exaggerated estimates, we are leaning in the opposite direction when we suggest that the Algonquin vanguard probably arrived at about 1000 B.C., or possibly a few centuries earlier.

The fourth, or Eskimo, migration serves principally to emphasize the point we have been making—that the Australoid settlements in the Southwest had been enough of a barrier to prevent either the Folsom or the Algonquin migrations from

reaching as far south as Mexico, and, in the case of the Eskimo, they did not get as far south even as the United States.

There is surprisingly little evidence of any exchange of cultural influence between the Eskimo and the Algonquin, although they were in direct contact throughout their range; from this one can draw the conclusion that the last of the Algonquin had moved out of Alaska before the first of the Eskimo began to arrive. The Eskimo flowed in along our Arctic coast, forming a crust across the top of the continent and, if the relative size of the operation is any good as a guide, it seems rather doubtful that the migration should have required more than 200 or 300 years. The dates of about 500 to 300 B.C. for the duration of the Eskimo migration therefore leave about 500 years for the length of the Algonquin migration, unless the first appearance of cord-marked pottery in North America can be pushed down below 1000 B.C., in which case a few centuries might be added.

With the Eskimo tucked away under the Arctic Circle, we have brought four migrations over from Asia into North America—each of which was distinct from each of the others, for each of which it has been possible to point to a prototype in the Old World, and each of which can be identified in the New World after its arrival. Our version of American history, which began with the first peopling of the continent, has been brought up to about 300 B.C., and nothing in this world is more certain than that either we or Dr. Phuddy Duddy have made some colossal mistakes.

It is hardly necessary to emphasize that there is urgent need to refute this tale of ours quickly and unequivocally if we are to return to the good old days when an issue could be side-stepped by a verdict of "not proven," and so allow everyone to

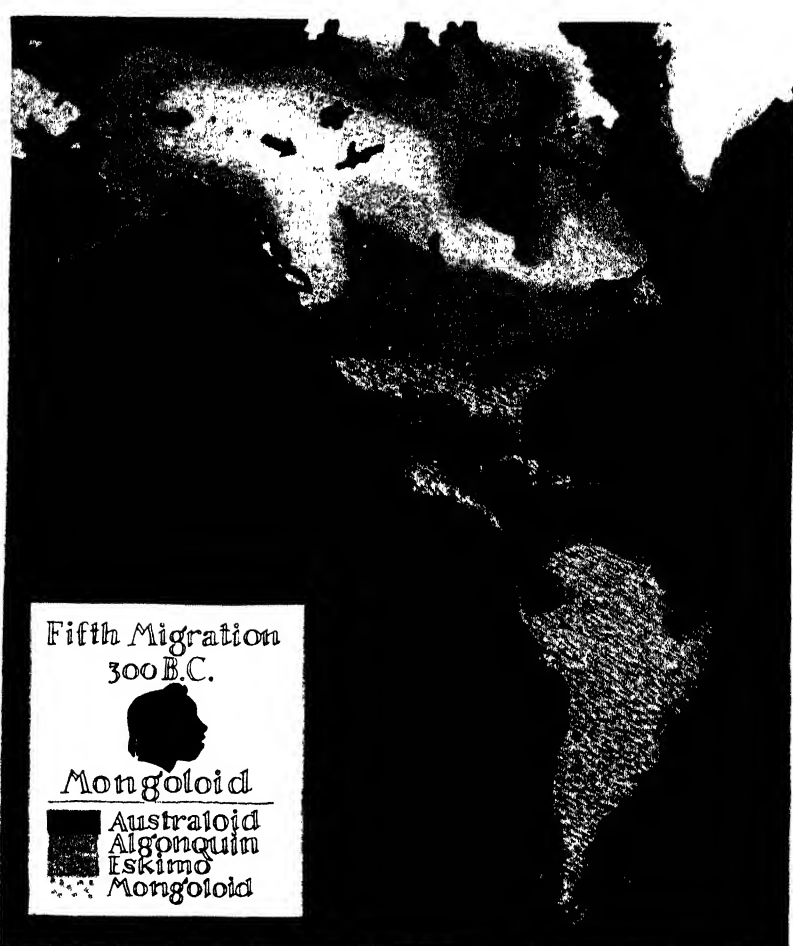
settle back into complacent contemplation of his psyche. One of the most important items that needs to be spiked is our suggestion that at 300 B.C. the Australoid migration was the only movement of people through North America that had penetrated to Mexico and Central and South America. Unless Phuddy Duddy can purposefully discover some indications of a Folsom industry, or some cord-marked pottery, or some Algonquin-speaking Indians south of the Mexican border, he will be reduced to Australoids from whom to distill the stuff of which pottery, metallurgy, textiles and pyramids are made—cultural essences of which Australoids in all other parts of the world have always been singularly devoid.

To this insinuation Dr. Duddy would almost certainly reply that no one in his sane senses would expect to find the origins of the great Middle American civilizations amongst Australoid or Folsom or Algonquin or Eskimo tribes, since it should be perfectly obvious that these were independently discovered and invented by the various groups of "American Indians," with whom such traits have been found to be associated.

This reply, however, would merely point the need for haste in refuting the tale we have told, since we have been doing our best to unscramble this generality by trying to make it clear that there were no "American Indians" other than Australoid, Folsom, Algonquin and Eskimo in the New World before 300 B.C. The American Indians that Duddy is yearning for are some of the broad-headed Mongoloids who bleared the types of the earlier migrations, and we are now going to start bringing them over—lots of them; but even if we rush some of them over in 299 B.C., there will still not be time enough for them to independently duplicate all of the discoveries and inventions that are needed.

The situation calls for a full-dress demonstration of Dr. Duddy's powers of levitation, whereby he has been able to keep a top-heavy theory floating in mid-air for many years without any supporting evidence. It will be interesting to see how Dr. Duddy will handle the situation, and while he prepares his spells and formulas we will go on to tell you about the Mongoloids who made up the fifth migration.





Fifth Migration
300 B.C.



Mongoloid



Australoid
Algonquin
Eskimo
Mongoloid

The Fifth Migration

BY BERING STRAIT—OUT OF ASIA

BROAD HEADS . . . brown eyes . . . slanting lids . . . prominent cheekbones . . . and yellowish-brown skin . . . straight, black hair, but not much of it on the face. . . .

Here come the Mongoloids with the dominant features, who blurred the type of the Australoids, Negroids and Algonquins of earlier migrations and so made it possible for Dr. Phuddy Duddy to call the resulting product "The American Indian." They came over from Asia—that much is certain. They came in large numbers, in a steady stream. They kept coming for a long time. And the branch with which we now have to deal made up the fifth migration into North America.

Their coming raises a good many questions that we should like to have answered:

Where did these Mongoloids live before they came over here?

When did they come?

Supposing that they came from Asia, why did they leave?

Where did they go when they reached North America?

What did they bring with them?

These should be enough to start with, and, after we have gone as far as we can in providing answers, you can make another list of your own.

Where did these Mongoloids live before they came over here?

Their physical make-up points quite clearly to eastern Asia, but eastern Asia covers a good deal of country and it contained many different types of people—short, stocky Japanese, tall Manchus, Chinese, short and tall, slim and stout—all sorts and conditions of Mongoloids. Of them all, the people of the northern provinces of China may come nearest to filling the bill for the fifth migration. It does not make the problem any easier, however, to realize that each branch of Mongoloids that migrated to North America was entering regions which were becoming more and more thickly populated, and that as soon as they arrived they promptly began to mix with the various peoples already here, and in putting their stamp upon the earlier types were themselves also changed. For the moment, the essential fact to remember is that the newcomers possessed broad Mongoloid skulls, and that no such heads had been known in any part of North, Central or South America before the arrival of this fifth migration.

When did they come?

In the good old days, when there was not much evidence on hand and scientists could hand down an edict without being subjected to ribald heckling, the word went forth that Indians in Mexico had been building pyramids and making pottery as long ago as 6000 B.C. This date was based on the estimated age of a lava flow that had messed up a pyramid and ruined a lot of good pottery at Cuicuilco, a so-called "archaic" site, about ten miles south of Mexico City. It was a splendid effort to obtain a little chronological elbowroom, and it would probably still be "on the books" if the Vaillants had not dug at Zacatenco and Ticoman and shown that goods of the same kind were being manufactured a few miles north of Cuicuilco at about A.D. 500.

In the excitement of having so much time on their hands, some of our immortals began toying with the idea that some of the stuff of which civilizations are made had originated in the New World and spread to the Old. Something of the sort would have been necessary, as pyramids and polychrome pottery in Mexico at 6000 B.C. would have been several millenniums ahead of the same things in Egypt or Mesopotamia. What fun it would have been if we could have driven Petrie and Woolley and Marshall to Psychic Unity and independent inventions as an explanation for the origins of civilization on the Nile, the Euphrates and the Indus!



A more conservative estimate resulted from attempts to translate the Mayan calendar into terms of our chronology when a little jade statue, known as the Tuxtla statuette, from St. Andres Tuxtla in Vera Cruz, was found to have glyphs on its back which were interpreted as registering a date equivalent to our 96 B.C. And, by processes suggesting the methods employed by

Dr. Lightfoot, mentioned earlier, the Mayan calendar was figured out as having begun on November 10, 3485 B.C. For a while it looked as if this date could be made to stick, as it requires a mental gymnast of peculiar ability to make head or tail out of the Mols, Macs, Zotz and Pops of which the Mayan calendar was composed. But, alas, a doubting Thompson (Eric) came along and decided that:

*Twas Akbal and the Chuen Ix,
Did Oc and Manik in the Kan.
All Muluc were the Cib Imix,
And the Lamat Chicchan.*

So, knowing your Maya Day Signs, you can tell at a glance that, by doubling the Venus Cycle, you would have a Bi-Cycle; or if you prefer the Short Count, you could use the Initial Series to show that L.S.D. would P.D.Q. become I.O.U., which is the usual formula. If this does not make sense to you, it may be that the whole problem of Mayan glyphs has been approached from the wrong end, in which case the Tuns should be reversed to read Nuts.

With lava flows in Mexico, calendar correlations in Central America and fossil corn in Peru all failing to substantiate the high antiquity which had been claimed for them, we fall back on the more prosaic evidence of archaeologists who all seem to agree that they ran out of pottery, plus broad skulls, at levels which they estimate as of about A.D. 1. So, if the Eskimologists are right in setting a date of about 500 B.C. for the arrival of the Eskimo, and if we allow 200 years for the duration of the Eskimo migration as suggested before, then 300 B.C. should be fairly close to being the date for the beginning of the Mongoloid migration.

With this as a guide, you can now turn to the Old World to

find out if there was any good and sufficient reason why the Mongoloids should have started on the long trek through the tundra and ice of the Arctic, and see if the timetable of departure and arrival can be reconciled.

Why did they leave Asia?

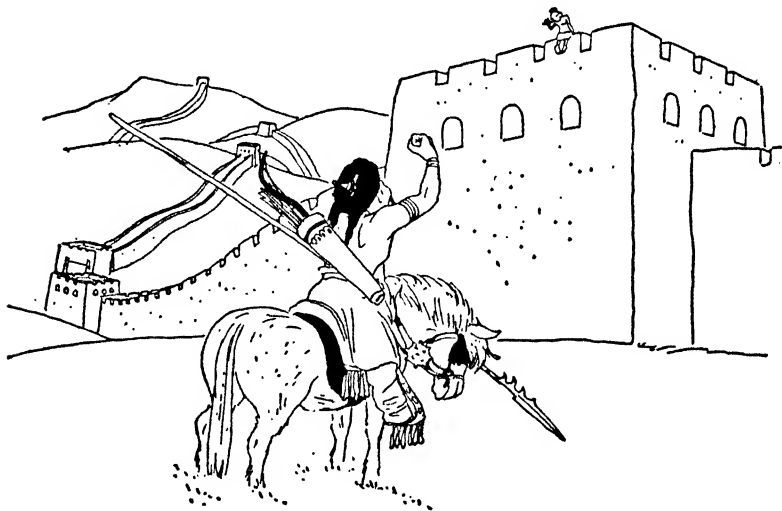
Most archaeologists are brought up nowadays on the slogan, "When in doubt, say drought," if called upon to explain the movements of people, but, whatever the climate in eastern Asia may have been during the few centuries before Christ, it would be hard to believe that it was so bad that people moved up to the Arctic for relief. It would also be difficult to argue that eastern Asia was suffering from drought when it has been shown that in Scandinavia and North America the climate became humid beginning about 500 B.C., and since then has not undergone any major change.

With the vagaries of climate ruled out as a cause of the dislocation of the Mongoloids who came over here, some sort of human disturbance is the most likely explanation, and, when this point is reached, it is just a question of choosing the particular upheaval that best suits your fancy.

Central and eastern Asia are apt to be blank spots in the average person's perspective of history, and it is consequently rather surprising to learn that there was once a more or less continuous chain of white tribes, the Scythians, stretched across northern Asia. These white, blue-eyed (the Chinese described them as green-eyed) people, with their blond hair (the Chinese said it was red), are chiefly of interest to us because they were the first people to ride a horse and, incidentally, to wear trousers (everyone else who owned a horse drove a chariot and wore a flowing robe). Not only did they ride their horses, they also taught themselves to use a bow and arrow from the back of a

horse, and as a consequence they made life miserable for their pedestrian neighbors.

Among their victims, for a time, were the Huns (Hsiung Nu to the Chinese) of eastern Mongolia, and it was not until about 400 B.C. that these Huns also learned to ride and shoot while mounted, whereupon the course of events in eastern Asia was completely changed. From small and insignificant bands of



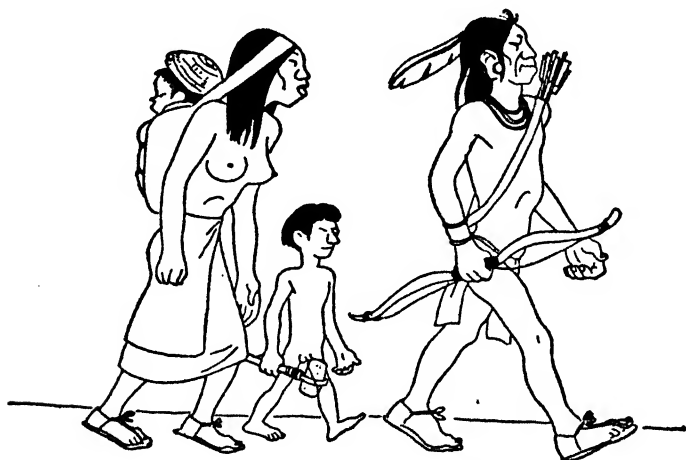
footsores nomads who had been persecuted by Scythians from the west and Chinese from the south, the Huns suddenly began to outgrow their boots. (It is quite proper to refer to their boots, as these were a part of the Scythian horse culture.) They gained control of Mongolia and then began a series of campaigns against the Chinese, practicing and perfecting a technique of hit-and-run warfare which, in the days to come, was to make it possible for their descendants to invade Europe as far as the borders of Saxony.

It may have been the Huns unassisted, or it may have been due to repercussions of the upheavals in western and central Asia, but, whatever the ultimate cause, the completion of the Great Wall, stretching for 1500 miles along the northern frontiers of Kansu, Shensi, Shansi and Chihli, was convincing evidence that someone in China had been awfully scared by someone outside of China before that date. Furthermore, the breakup of the Chou Dynasty during the third century B.C. was a time of internal chaos and anarchy in China, so that there was no organized defense against the raiding Huns. It seems reasonable, therefore, to think that the tribes in northern China and Manchuria, lacking the protection of the Great Wall, may have followed the line of least resistance northeastward and, once started, this route led naturally to eastern Siberia and over Bering Strait to North America.

The Ways and Means of the Mongoloids

THE MONGOLOIDS are coming, and now to follow their trails as they move into the New World.

Take a pencil and a relief map of North America, give your imagination a chance, and, beginning with the knowledge that you actually made the trip from Asia, try to work out for yourself how they did it, where they went, and why. Re-



member that as a northern Chinaman you don't know much about a seagoing boat, and so you cross Bering Strait on the ice. It is midwinter, and, if you barge into the interior of Alaska,

you are apt to run into sub-zero temperatures, sometimes 70 degrees below; but, queerly enough, if you spend the winter on the south coast, which is warmed by the Japanese current to mean temperatures in January slightly below 30 degrees Fahrenheit, you will be more comfortable than you were in China.

You wait until spring, and it does not take long for you to decide that you will never get anywhere by trying to force your way through the tangle and gloom of the forest. So you start up the Yukon, bag and baggage, men, women and children, and set your face to the rising sun.

Follow the Yukon for about 800 miles, until the Porcupine comes in from the east, then on for another 200 miles over a low divide, and you are in the Mackenzie drainage with an open road to the south; or, if you took the wrong fork at the junction of the Porcupine, you stick to the south branch of the Yukon, which also takes you into Yukon territory, with all streams leading you eastward.

Once east of the Rockies, your way is clear—open plains to your left, mountains on your right, game in abundance, plenty of firewood, streams flowing down from the mountains, and the climate getting warmer with every mile.

As you move south there are choices to be made. Where Helena stands today you will come to the Missouri. Coming from a land of wide-open spaces some of your people may decide to follow the river eastward into the plains, and they will eventually reach the Mississippi and settle down in Arkansas where, some day, they will be known as Caddo. Those of you who cross the Missouri and continue south, will come to the Arkansas in eastern Colorado, and again some will veer off and follow the river to join their Caddoan brethren in Arkansas and eastern Texas. At this point a few may follow the Arkansas

westward to the Gunnison and so to western Colorado and the country of the Basket Makers.

In eastern New Mexico there is the Canadian to lead another contingent eastward by way of the Red River. But it makes little difference whether you follow the Missouri, the Arkansas



or the Canadian, as all three rivers lead to what since has become Caddoan territory.

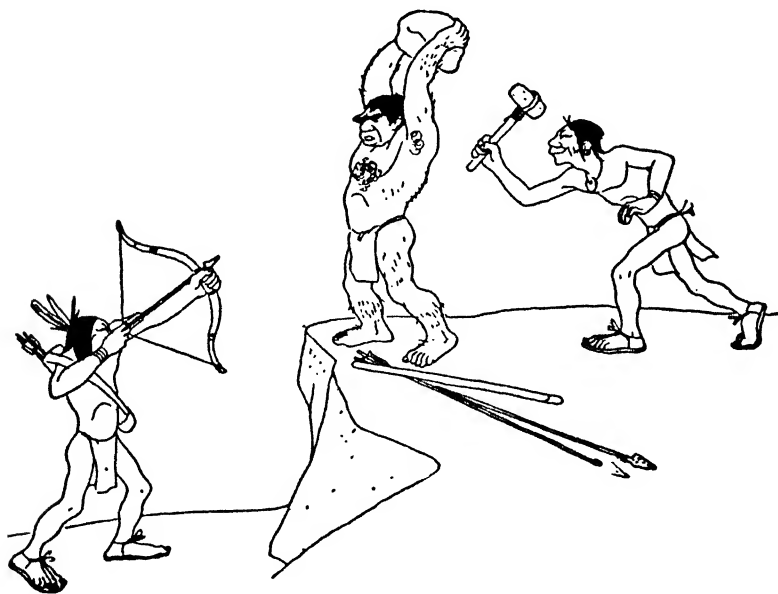
Large numbers pressed southward, keeping to the foothills of the Rockies until our modern Santa Fe was reached, where they entered the Rio Grande Valley and followed this artery southward to the Gulf of Mexico. Then down the coast through Tamaulipas—some stayed on the Panuco, later to become the Huastec—and into Vera Cruz, where another large group broke off and climbed up to the valley of Mexico, where they later helped to found the Toltec culture.

The remainder continued south along the eastern shore of

the Isthmus of Tehuantepec, where the going is not too tough, and so to Colombia and the west coast of South America.

Next, what did these broad-headed, slant-eyed Mongoloids bring with them?

First on the list you can place the sinew-backed bow, some-



times called the Tartar, or Mongolian, bow. The feature which distinguishes this bow from all others is that it was built up of layers of wood and horn and backed with sinew to give greater casting power. It was a short bow, and thus is easily distinguishable from the earlier longbow of the Algonquin.

To this you can add such complements as the Mongolian arrow release, possibly the feathering of shafts, and it now begins to look as if these people must have imported side-notched

arrowheads, since Algonquin points were usually finished so as to provide a tang or tongue at the base and did not have side notches.

Now list the three-quarter grooved ax, so-called because of a groove about an inch wide and half an inch deep, which was channeled around three sides of the head to receive the wrapping of the haft, or handle. The ax was usually about six inches long and about three inches in diameter with two opposite sides ground down to form the bit, or cutting edge. At this stage of manufacture it would have looked very much like a celt, but the addition of a deep groove around three sides of the head stamped this ax as a distinct type because of the way in which it was attached to its shaft. A handle of wood about an inch thick was selected. One end was pared down to a thickness of about half an inch, made pliable by steaming or soaking, bent around the groove, and lashed back against the handle. A wooden wedge was then driven down along the blank fourth side of the ax and everything was held tight and snug.

Axes of this kind have been found from the Atlantic coast to the Southwest (not in California), down into Mexico and Colombia, and as far south as Argentina.

In the Old World they either used the shaft-hole ax with a hole drilled through the head, or the grooveless ax or celt. In the district of Anyang, in northern Honan, however, the Chinese used axes which were grooved on three sides, identical with those found over here, and this helps to pin down the locality from which the people came.

Other things which may have been carried over were ornaments and figurines of jade. True jade, or nephrite, as distinguished from its inferior cousin jadeite, is a tricky thing to try to trace as deposits are few and far between, although occasional

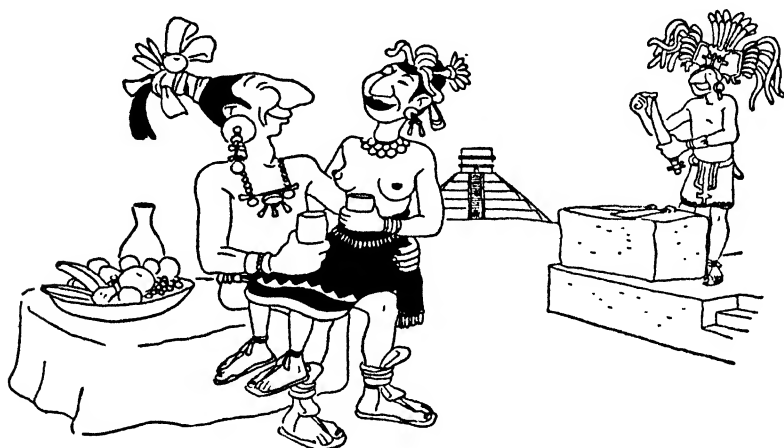
boulders crop up in the most unexpected places. Most of the jade used in China comes from Burma; there are also deposits in Turkestan, Silesia and Siberia; New Zealand has some; but, in the New World, Alaska seems to be the only source of nephrite. It is, therefore, rather difficult to understand how objects of true jade, of which several have been found could have worked their way into Mexico unless they were carried there. It may also be significant that the Mexican and Central American broad-heads shared the Chinese passion for jade.

Next, you can add the liking and the ability to make finely carved gadgets of shell, bone and stone—little figurines, bracelets, rings, pendants, gorgets and plaques. These people probably also carved in wood, but this, of course, has not been preserved.

An unpleasant trait, the idea of which they seem to have carried into America, was human sacrifice and the peculiar methods used in connection with it. Both in Mexico and among some of the Caddoan tribes, victims were sacrificed by slashing the breast and tearing out the still pulsing heart. The procedure was embellished in Mexico by choosing the handsomest male captive and treating him as a god for one year prior to taking him apart. He lived in a palace, was waited on hand and foot, provided with concubines, dressed in fine raiment and fed on the fat of the land, until the day of sacrifice. The Caddoan Pawnee went through the same performance with the most beautiful captive girl, and then slaughtered her in just the same way.

It is highly probable that a number of other traits and customs will eventually be identified with this particular migration of Mongoloids, and there was a time, not long ago, when we used to think that these might have been the people who brought with them the knowledge and ideas which later

sprouted into the civilizations of Mexico, Central America and the Andean country. But, as we said in Chapter XIV, if new facts turn up which refute your ideas, then you must obviously revise your hypothesis since you cannot change the facts, and, in this instance, we were soon confronted with the indisputable fact that many of the fundamental traits of the high native



American civilizations are not to be found in northeastern Asia but are characteristic of southern Asia and the Near East. So we changed our hypothesis. We hope and believe that we are now on the right track, as things are falling into place and we have not yet met any insuperable objections, but we are ready and willing to change again if you can point out our mistakes or coin a more reasonable hypothesis. Here is the problem as we see it.

We are going to have to deal with several groups of Mongoloid peoples, all of whom shared certain physical features, and who furthermore implanted some of their dominant fea-

tures upon the earlier non-Mongoloid peoples who had preceded them to North America. This is particularly true of the situation in the Mississippi Valley, and westward to the Pacific coast. It may be that the physical anthropologists will eventually succeed in disentangling some of these Mongoloid types, and it is quite possible that a start has already been made if this earliest Mongoloid migration, with which we are now concerned, can be identified as the type to which Dixon referred as *Palae-Alpine*—meaning broad-headed, high-skulled, and broad-nosed. It is very difficult, however, to draw valid distinctions on physical features alone, as it is to be supposed that there had been a good deal of intermingling between all of these Mongoloid groups during the thousands of years before they came to the Americas.

Another and more reliable guide is the division of the various Mongoloid migrations according to their language stocks—Penutian, Uto-Aztec and Athabaskan—and these will be of value when we come to the later migrations. It might also be possible to link certain physical features with certain language families, which would be a big help.

The third and probably the best way of telling each of the migrations apart is by the things they made and did, or those they did not make or do, and these constitute a long list. For the time being, we are dealing only with the earliest of the Mongoloid migrations, and we will start the ball rolling by saying that this group came over from northeastern Asia, across Bering Strait, and they could therefore have brought only those things which are also to be found in northeastern Asia. Some of these have already been mentioned, but others will undoubtedly be added as time goes on.

Now with the ball rolling it is rather hard to stop, and so we

will just give it an extra push by saying that the things that this group of Mongoloids did not make or do are probably the best means of identifying them. These are fighting words, since it is the rankest sort of heresy to suggest that there could have been a Mongoloid of any kind in the New World who was not capable of reinventing anything and everything that anyone else had ever thought of. But, having flung down the gauntlet, and, while the Knights of Orthodoxy are reaching for their pens, pencils and typewriters in preparation for entering the lists, here are the questions that will be settled only when one side or the other runs out of words.

The first of these is the same old question as to the origin of the pottery that was soon to make its appearance in Mexico and all points south to Peru. In this case it was polished red, and the question again raises its ugly head since, at 300 B.C. or earlier, polished red pottery was not characteristic of northeastern Asia, where the cord-marked type was the fashion. So these Mongoloids could not have brought it with them; nor could they have acquired it from the Algonquin, as the two types are quite different and nothing even remotely resembling the cord-marked pottery of northeastern Asia or the Algonquin has ever been found in Central or South America.

The second question to be settled is vastly more complex than the source of polished red pottery as it involves the origin of *all* the traits which went into the making of these high cultures, since these have all been shown to have been approximately contemporaneous. If you start by saying that pottery was discovered in Mexico quite independently of any other pottery-making people anywhere in the world, then you find that the people in Mexico who made the pottery also built temple pyramids. So, of course, they must have independently invented

their temple pyramids, since, if it should be regarded as a possibility that they had heard of such pyramids from an outside source, they could obviously have gained their knowledge of pottery making from the same source. But this is only the beginning of an endless series of repercussions. In addition to pottery and all its ramifications and temple pyramids and all their elaborations, there is a long list of highly complicated contrivances which can only be explained by the same formula. This list includes such things as the vertical loom, with ten or more working parts; various textile techniques, such as gauze weaving, tapestry, damask, knitting and resist dyeing; metallurgy, including smelting, blast furnaces, casting, plating, filigree, the working of gold, silver, copper, platinum and the making of bronze and other alloys; and many other items, some of which are significant, others piffling, but which, added together, make a formidable list of duplicate discoveries and inventions to be explained.

The third question is why all the Mongoloid cultures differ from one another, if each item of their culture was the result of their own reinventing.

As Pueblo Indians on the plateau of the Southwest, they made black-on-white pottery, and built pueblos, but they knew nothing of pyramids, and a few copper bells represent their knowledge of metallurgy.

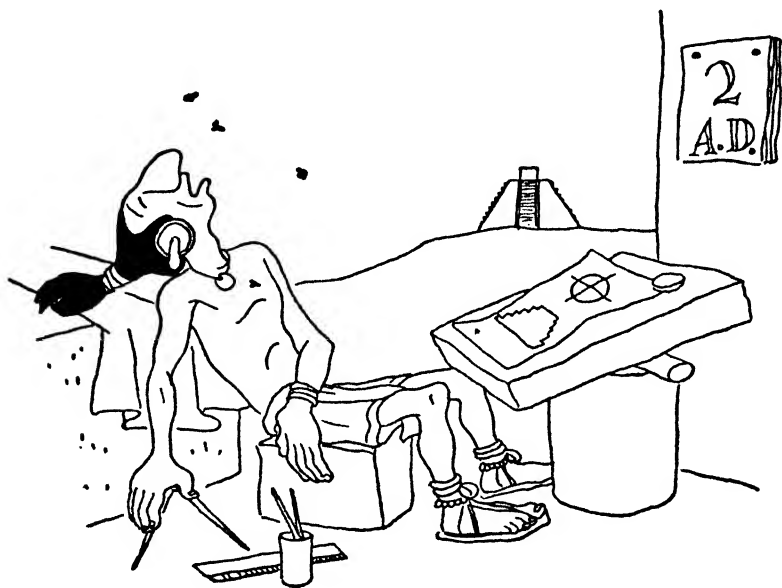
As Hohokam in southern Arizona, they made red-on-buff pottery, lived in single-room houses and built miles of irrigation ditches.

As Caddo in eastern Texas, they made red-on-brown pottery and built earthen mounds.

As Toltec in the valley of Mexico, they incised their pottery, built temple pyramids and were expert lapidaries.

As Maya in Guatemala they built temple pyramids, worked out a calendar system, carved steles and covered them with hieroglyphs.

In Peru they used a knotted string instead of a calendar, built great masonry fortresses and excelled as weavers.



So, of Mongoloid inventors, as of women, you can say that you never saw two alike at any one time and you never saw one alike twice.

The fourth question is why these Mongoloid inventors did all of their rediscovering and reinventing in the early days of each culture center and added little of any real importance during the later periods.

Why, in Peru, for instance, were the early things so much better than those which were made a thousand years later? The

pots which were made in early Mochica times along the coast of Peru, were probably the finest examples of pottery portraits known from any culture at any time. Nothing nearly as good was produced in later periods.

And fifth, how did these Mongoloid immigrants to the New World manage to produce a brood of inventors who, in a few centuries, succeeded in duplicating a long list of things that had demanded the combined efforts of the best brains in the Old World, spread over several thousand years?

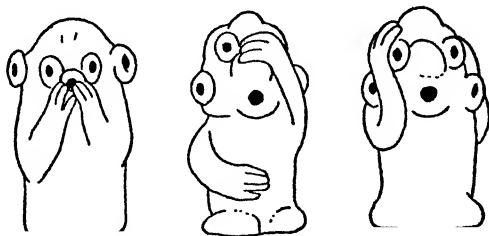
And why had these Mongoloids done none of these things in their own land?

And why did they limit themselves to duplicating only those things which had been discovered or invented in the Old World up to A.D. 1?

And how did anyone ever concoct the idea of duplicate independent inventions in the first place?

And, once concocted, how on earth did anyone else ever fall for it?

The lists are joined. Lay on, M'Academicans; and damn'd be him that first cries, "Hold, enough!"



What to Believe

BY PHUDDY DUDDY—OUT OF CONTROL

IT WOULD not take long to settle our problems if we could pin down Dr. Phuddy Duddy and make him answer the questions we have posed, but this is not to be expected. The theory of Psychic Unity is not the kind of idea that was designed to answer specific questions; on the contrary, it was based on vague generalities, and, in order to protect these generalities, it has been necessary to deny anything that might become established as a definite point of departure for unorthodox theses.

We can all agree on the generality, for example, that the New World was populated by people who came over from Asia. But when one asks how many migrations there were, or who the people were, or where they came from, or when they came, or what they brought with them, one is met with another generality that the New World was populated by a migration of people who were "American Indians" after they reached here, regardless of what they were or did before they left Asia.

Beyond this no disciple of Duddy's will venture, since it would at once involve him in specific comparisons leading up to definite interpretations. It has been this negative attitude of mind, for instance, which has consistently refused to recognize the definite implications of the many references by physical anthropologists to such types as Australoid or Negroid in the

make-up of various Indian tribes—even though veiled by such qualifications as Proto-Negroid or pseudo-Australoid. Terms such as these will be found only in technical papers on physical anthropology, but never in orthodox reconstructions of native American history. We have included them here because we think they cannot fairly be ignored, and, once you accept them as facts to be reckoned with, they turn out to be essential to an understanding of the problem since they show that Mongoloid people could not have reached North America much before the time of Christ.

So, having made it fairly clear that we don't like Psychic Unity or the other generalities that have been used as smoke screens, we are now going to slip out of our doghouse and sniff around in some of the corners and cupboards and see if we can't find a few skeletons and other odds and ends that we can add to Duddy's growing list of troubles. While so engaged, we yield the floor to Dr. Duddy, who has accepted our invitation to present his side of the questions at issue and correct any errors which we may have made.

We present Dr. Duddy:

"I welcome this opportunity to present my views and those of my colleagues in a connected consecutive story. This history of the American Indian is essentially a simple one which places no burden upon either teacher or pupil, and one which, I am confident, can be readily understood by persons of the most meager intelligence. In tune with our modern times, I have condensed the fundamental theory into a phrase, or slogan, which can easily be memorized:

"They came . . . they saw . . . they concurred' with the pattern of life of human beings in all other parts of the world.

"And herein lies the essence of the problem of the origin and

evolution of man and his culture in the New World. The American Indian was a human being, a specimen of *Homo sapiens*, or that species of man of which you and I and all other living persons are members.

"With this fundamental concept of the unity of the human family as a background, it is now only necessary for me to demonstrate that the American Indian was merely one member or race of this human family, and that his physiognomy, his physiology, his physical abilities and his psychological reactions were exactly the same as those of other men in similar situations the world over. In other words, the American Indian is the outstanding example of the Psychic Unity of Mankind.

"In this book Gladwin has made a determined effort to instill some significance into the variations of physical types among certain tribes of American Indians. This trespassing by amateurs in specialized fields is a practice which cannot be too strongly condemned, and one which, unless quickly checked, will almost certainly stimulate unwarranted speculations. It is true, of course, that Hooton, Dixon, Keith, Haddon, Taylor and some others may occasionally have been a little careless in referring to certain types of American Indians as resembling Australoids or Negroids, but such references are merely the whimsies of the specialist and should be regarded simply as a form of poetic license. The somatic homogeneity of the American Indian race has been proclaimed again and again by many of our Immortals, and, while I do not wish to seem to be opinionated, it appears to me to be a waste of time and energy to seek resemblances to Australoids, Negroids, Mediterraneans, et cetera, when all that we need to do is just to look at an American Indian to know that he is Mongoloid.

"That the American Indian was a unified, homogeneous race

there should be no doubt, but it may reassure those whose confidence has been shaken if I take a moment to explain some of the differences in physical type which, it has been claimed, can be detected between various tribes. These differences have been said to show a wide range of skull form—from very long, narrow heads to short broad ones—also differences in stature, skin color, hair texture and the shape and size of the nose and eyes.

“By emphasizing these differences, a question of somatic stability is raised which demands further detailed research and proof before such ideas as have been proposed in preceding chapters should even be considered. It has been suggested that the features of certain American Indian tribes which resemble those of certain Australoids should be attributed to inheritance from a common original stock, but no consideration has been given to the factors of environment and function. Some people, for instance, habitually sleep upon their backs, others on their sides; and until it can be conclusively demonstrated that long-heads who sleep on their backs do not become broad headed, or that broad-heads who sleep on their sides do not become long headed, this must be regarded as a possible explanation. Or how can we be sure, until laboratory tests have been made, that orthognathous people may not have acquired their straight faces by trying to suppress their laughter? Even if it be granted that the migration which entered North America may have included some long-headed individuals, we can point to the many inventions which later were made by these people and reckon the probability that, in broadening their minds, their heads were also broadened.

“One has only to look at the profile of the skull of *Pithecanthropus* or Neanderthal man to realize that the development of thought processes through the ages has retracted the protruding

occiput and raised the forehead, thus demonstrating that the skull is a flexible envelope, the shape of which may be altered by the exertion of the impalpable and immeasurable force of an expanding mentality. Something of the sort would undoubtedly be the correct explanation to account for the variations in skull form to which attention has been drawn.

"Differences in stature, skin color, et cetera, are even easier to understand. It is customary, for example, for some men to stretch out their necks when promulgating new ideas, whereas other men shrink at the mere mention of an unorthodox theory. It should also be recognized that reactions vary with the individual when legs are forcibly extended, and we are, as yet, entirely ignorant as to the effects upon one's physique of a person being long-winded or short-tempered.

"With hair texture the same uncertainty exists as to the relationship of cause and effect. Some of us have undoubtedly been offered potions which have been asserted to be capable of growing hair on a billiard ball. But what sort of hair? And what color? And how and why can other beverages be guaranteed to make one's hair curl? And so forth and so on. I mention these things not with any desire to confuse the issues but rather to draw attention to a number of factors which, up to the present, appear to have been completely ignored by physical anthropologists as potential causes of variation in the human form.

"And now, having settled the question of the homogeneity of the American Indian, we can deal with the problem of when the migration arrived.

"In the present discussion it is being claimed that the New World was populated by a series of migrations, spread over a long period of time, and involving the assumption that several different racial groups found their way from Asia into North

America. I deny this claim with all possible emphasis; I regard it as of the utmost importance that all professional anthropologists shall join me in repudiating this insidious idea so that it may be disposed of, here and now, once and for all. It is no exaggeration for me to say that if this theory should ever receive serious consideration the entire structure of Academic Anthropology would be seriously endangered, since we should no longer be able to rely upon the unanimity which we all have shared in regard to the independent invention of New World cultures . . . the homogeneity of the American Indian race . . . and, above all else, the element of *time*.

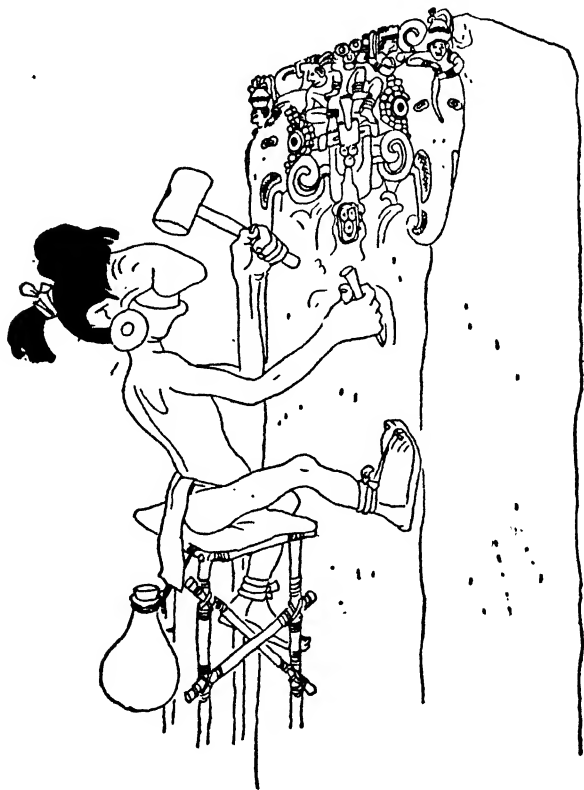
"It is imperative, therefore, that we preserve a united front and insist that, with the possible exception of the Eskimo, there has been only *one* migration from Asia to North America . . . that this migration was made up exclusively of the American Indian race . . . and that this migration arrived in North America at that *exact epochal moment when people in Asia knew enough*—so that they cannot be said to have been Palaeolithic, *but did not know too much*—so that they cannot be said to have carried over any of the knowledge or things which were characteristic of the middle and late Neolithic. From which it will be obvious that we have succeeded in reducing Academic Anthropology to a very exact science.

"Taking the first of Gladwin's migrations, the so-called Australoid which is said to have entered North America at 20,000 B.C., this can be easily and quickly refuted.

"First, as to the propriety of the use of the term 'Australoid.' I have taken the trouble to make exhaustive inquiries on Beacon Hill, but among all of the families which trace their lineage back to 20,000 B.C., I have been unable to find any record of an Australoid ancestor, and the indignation with which my in-

quiries were met should serve to silence this heresy without further discussion.

"Next, as to the sweeping claims for antiquity that have been made, chiefly on the basis of human remains said to have been



associated with the bones of various types of elephants, I regard such claims as extravagant and quite unfounded. These so-called elephant remains were undoubtedly those of some species of large parrot with an elongated bill. The same kind of mistake has been made in connection with a stele at Copán, where we

have been able to demonstrate that an elephant's trunk was the beak of a macaw. This has turned out to be a perfectly satisfactory explanation and can be used equally well for all other such claims.

"I could continue indefinitely along these lines, but there should be no need as I feel confident that the few remarks I have made will be accepted as establishing the four essential facts: that the American Indian constituted a homogeneous race . . . that there was only one migration of this race . . . that this migration arrived at that precise moment when men in the Old World were neither Palaeolithic nor typically Neolithic . . . and that, after this migration arrived, there was no further contact whatever with the Old World.

"With these four laws engraved on the record, it now only remains to say a word or two about how the great native civilizations originated and developed on the foundations we have laid.

"I can give unqualified and positive assurance that all questions relating to the origin and evolution of our Indian civilizations will be reduced to the utmost simplicity with the acceptance of the four stipulations that I have listed above, but which I will repeat as there is nothing like repetition to carry conviction:

"1. The American Indian race was homogeneous.

"2. There was only one migration.

"3. The culture which was brought in was neither old nor new.

"4. There was complete isolation after the arrival of the migration.

"Now, if you keep saying these lines over and over to yourself, the problem is solved. For the first few days you may find

it rather tiresome, but at the end of a week you will be aware of a growing confidence and, after a month or so, your faith will be unshakable and the ravings of a diffusionist will mean no more to you than the grinding of a dentist's drill on a sensitive tooth. When this point has been reached, but not before, you can pick up any book on Mexico, Yucatan or Peru, see for yourself that high civilizations were in existence when the first Spaniards arrived, and merely fill in the details. On the one hand, you know that when the Indians arrived they had next to nothing; on the other, you know they wound up with civilizations. The only problems which confront us, therefore, are to show how and where they occupied themselves during the intervening period while the necessary developments were taking place.

"For many years investigations have been planned and conducted for the specific purpose of discovering the center or centers where the various traits were first invented and later evolved. Our searching, however, is fraught with many difficulties as we have no guide as to the kind of environment that calls forth the response to certain needs. Was it a Peruvian, for instance, crouching at 10,000 feet on a wind-swept Andean crag who, contemplating the knots in a piece of string, forgot their meaning—consequently his wife's birthday—and so was made to realize the need for a more dependable calendar system? Or was it a Maya waiting in the jungle for a blind date?

"Was it a Brazilian who scattered tobacco dust on a pond and beat the fish on their heads when they came up to sneeze, and thus first invented snuff?

"Who was the first Amerind to experience the craving for a copper bell? A hieroglyph? A temple on a pyramid? And when? And where?

"These are merely samples of the questions which we are

called upon to answer. Our failure, thus far, to unearth the evidence we need should only be looked upon as a stimulus for further investigation. It should be borne in mind that we know very little as yet about the jungles of the Amazon, and it may be that the evidence we are seeking lies buried under the leaf mold of centuries. Every lava flow in North and South America will need to be lifted before we can be sure that they do not conceal what we are looking for.



“But, in the meantime, we are not idle. The modern scientist is alert and overlooks no opportunity. At the present time, for example, we are employing eminent psychologists to analyze the motives that prompted the writing of the primitive folk song, ‘I got plenty of nothing, nothing’s plenty for me’ in the hope that this may lead us to the discovery of the origin of zero.

"From these few remarks it will be clear that there has not been, nor will there be, any deviation from the path which we have chosen. I have listed the four facts fundamental to an understanding of American prehistory, and I have explained that it is simply a question of looking far enough and deep enough to find the many and various details of material evidence needed to round out the story. That the evidence of such discoveries and inventions by American Indians exists and will eventually be found there cannot be the slightest doubt, since to question the inventive ability of our natives would be to imply that every university course in American anthropology during the last 50 years has been based on false doctrine—an insinuation that would not only be absurd but would not bear contemplation.

"So with these basic facts firmly established, it is high time for kindred sciences to come to our assistance. I suggest that it has become the obvious duty of the physical anthropologists to seek out those factors that have been the cause of some of our homogenized Indians being broad-headed, others long-headed; why some are tall, others short; why some have wavy hair, others straight; why some are red-skinned, some brown, some yellow; why some have high convex noses, others low and concave; and so on. Then, while the physical anthropologists are settling these questions, we also suggest that it would be a good idea for the linguists to find out how this originally unified race has split up into so many different language families—Hokan, Algonquin, Uto-Aztecan, Athabaskan, and Arawakan, to mention only a few.

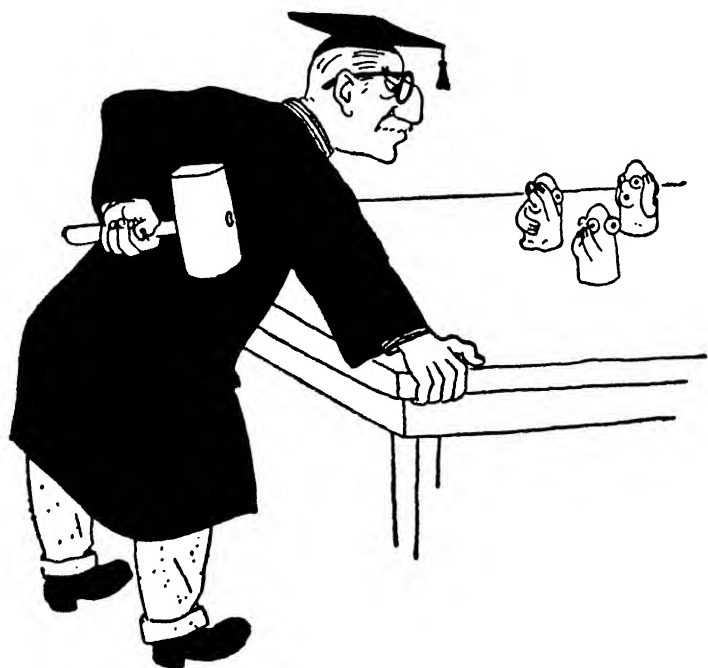
"In closing this brief account, I am sure that it will be clear to everyone that the analyses and investigations that we are conducting are not proper subjects for amateur discussion, and I

must therefore add a word of warning to beware of the specious explanations which have been advanced in this book. To untrained or indiscriminating minds they may seem plausible, but, as a scientist, I regard them not only as fantastic, but also as a definite menace to the reputation and authority of every professor of Academic Anthropology.



"I suggest therefore that we shall all follow the example of that priest of Copán—or was it a Tikal nun?—who conceived the idea of 'See no evil, speak no evil, hear no evil,' and gave material expression to the idea by modeling the three little clay figurines with their hands over their eyes, mouths and ears, which Dr. Kidder found at Kaminaljuyu in Guatemala. Having in mind the three little Japanese monkeys who, in another

land and at another time, also saw no evil, spoke no evil, and heard no evil—because their hands were also used to cover their eyes, mouths and ears—it would be difficult to find a better illustration of Spinden's statement that 'it is only necessary to regard any parallelism in the subsequent achievements of the sundered hemispheres as due to the approximately uniform operation of human judgments in social, emotional, and intellectual matters.' ”



Gods, Bearded and White

FOR A LITTLE while we are going to be eminently respectable by sticking to recorded history and quoting from recognized authorities, but in dealing with the cultures of the New World one often finds it difficult to reconcile respectability



with what one believes to have actually happened in the light of the evidence. So let's begin by admitting it is not to be expected that there will be any general agreement as to our interpretation of such evidence.

When Juan de Grijalva in 1518 led an expedition from Cuba, landed at Cozumel Island and explored the coast of Yucatan, and a year later, when Hernando Cortez arrived at Vera Cruz to begin the conquest of Mexico, they found to their great sur-



prise that many of the Indians not only did not attempt any resistance but actually welcomed them, seeing in these bearded white Spaniards the return of their own fabled white gods.

Although this item is recorded in all the many histories of the Spanish conquest of Mexico, there has been a surprising lack of

interest or speculation as to how beardless brown Mexicans could ever have imagined a bearded white figure as a god. In view of this pall of silence, we suspect that it is not regarded as in good taste to draw attention to this bar sinister in the heraldry of Mexico.

It is a rather embarrassing situation, particularly since, while Mexicans worshiped their bearded white Quetzalcoatl, the Maya their bearded white Kukulcan, and the Peruvians their bearded white Uiracocha, there were many other Indian tribes that also worshiped bearded white gods.

Now, of course, it would not take the right kind of psychiatrist long to dismiss one intangible myth as the result of some sort of a bad dream, but it seems that there must have been an epidemic of frustrations, or whatever they are, that caused beardless redskins to dream about bearded white gods.

To make matters even worse, this phantasm was expressed in material form. Along the south coast of Mexico, in Vera Cruz, in Central America and down into Peru, there is what some men would call a plague of bearded figures, in the shape of heads carved in stone, modeled in clay and painted on pottery. Aside from their beards, the features of these images are often quite unlike those of any known Indians, and it will be worth while to spend a few moments looking over the available information about them.

Hubert Howe Bancroft, the historian of *The Native Races of the Pacific States*, has this to say:

"All the myths relative to the founders of the different American civilizations make reference to persons who have the same characters. All are white, bearded, generally covered with long vestments; they appear suddenly and mysteriously, give laws, instruct and introduce religions of bloody practices, and dis-

appear in a super-natural way. Such have been Quetzalcoatl, who appeared in Cholula, Votan in Chiapa, Wixtepecocha in Oajaca, Zamna and Cukulcan in Yucatan, Gucumatz in Guatemala, Uiracocha in Peru, Bochica in Colombia, and Sume and Paye-Tome in Brazil."

In his diary of Peru, begun in 1541, Pedro de Cieza de Leon wrote:

"... a white man of great stature, who, by his aspect and presence, called forth great veneration and obedience. . . . They say this man went on towards the north working these marvels along the way of the mountains; and that he never more returned so as to be seen. In many places he gave orders to men how they should live and spoke lovingly to them, and with much intelligence, admonishing them that they should do good and no evil or injury to one another and that they should be loving and charitable to all."

Another man, Sarmiento, describes this teacher as:

"... white and dressed in a white robe like an alb, secured round the waist, and that he carried a staff and a book in his hands."

Then E. B. Tylor,* the father of British anthropology, quotes the following tale:

"Quetzalcohuatl appeared at Panuco, up a river on the eastern coast. He had landed there from his ship, coming no man knew from whence. He was tall, of white complexion, pleasant to look upon, with fair hair and bushy beard, dressed in long, flowing robes. Received everywhere as a messenger from heaven, he travelled inland across the hot countries of the coast to the temperate regions of the interior, and there he became a priest, a law-giver,

* Reprinted from *Early History of Mankind* by Edward B. Tylor, by permission of the publishers, Henry Holt and Co., Inc.

and a king. The beautiful land of the Toltecs teemed with fruit and flowers, and his reign was their Golden Age. Poverty was unknown, and the people revelled in every joy of riches and well-being. The Toltecs themselves were not like the small, dark Aztecs of later times; they were large of stature and fair almost as Europeans, and (sun-like) they could run unresting all the long day. Quetzalcohuatl brought with him builders, painters, astronomers, and artists in many other crafts. He made roads for travel, and favoured the wayfaring merchants from distant lands. He was the founder of history, the law-giver, the inventor of the calendar of days and years, the composer of the Tonalamatl, the 'Sun-Book,' where the Tonalpouhqui, 'he who counts by the sun,' reads the destinies of men in astrological predictions, and he regulated the times of the solemn ceremonies, the festival of the new year and of the fifty-two years' cycle."

It will undoubtedly be said, and it will probably be true, that some of these bearded white gods were nothing more than myths; that the importance of some of these men was exaggerated by the Spanish historians; that there was duplication between such gods as Quetzalcoatl of Mexico and Kukulcan of the Maya, and so forth, and so on. But it would surely be a mistake to dismiss all of these instances as of no importance simply because they cannot be fitted into the prevailing ideas of native origins. In fact, the proven presence of bearded men, as shown by the carved stone and pottery figures which have been found in Mexico and Guatemala, gives a quality of authenticity to the accounts of the historians which suggests that there may be an explanation for the origins of native civilizations entirely different from that which is at present in vogue. So let us look over some of the evidence and see if it means anything.

In an article in *Natural History*, "A Bearded Mystery," George

C. Vaillant described a small pottery head from the Rio de las Balsas, in southern Mexico, which, because of its large, heavy beard and long mustache, and particularly the fact that the beard was evenly waved, looked more like an Assyrian than anyone else, and was certainly unlike an Indian from Mexico or any other part of the Americas.

In making comparisons with other examples of bearded figures, Vaillant mentioned a pottery vase from Chama, in central Guatemala, which shows a man with a full beard and shaggy eyebrows; a vase from Quiriguá, in northern Guatemala, on which a face is modeled with bristling brows, protruding eyes, and a goatee; a stele from Tepatlaxco, in Vera Cruz, with two men equipped with beards and mustaches; a stone disk from Vera Cruz with the same group of features. Libertad, in Chiapas, yielded a small pottery figure with a Vandyke beard, which is an excellent representation of a corpulent baritone singing a boisterous role but a very poor likeness of a Mexican or Mayan Indian. Two small bearded figures in jade were thought by Vaillant to have come from Oaxaca or Guerrero; and illustrating a bearded figure from Quen Santo, in western Guatemala, he added:

"A great number of sculptures exist that show a chin beard and their distribution ranges from Nicaragua to the Valley of Mexico. An especially characteristic type of chin beard associated with a thin-lipped, high-nosed face is commonly depicted in such sites on the Pacific slopes of Guatemala as Pantaleon, El Baul, and Santa Lucia Cosumalhuapa."

Two extraordinary examples of bearded figures were shown by Matthew W. Stirling in the *National Geographic* for September, 1940. One of these, a clay head from Tres Zapotes, in Vera Cruz, bears a remarkable likeness to Goethe's Mephistopheles.

The other is a figure with a long, flowing beard, which was found by Stirling on a stele at La Venta, in Tabasco.

Other examples could be cited, but these are enough to make it clear that the legends of the bearded white gods were not created



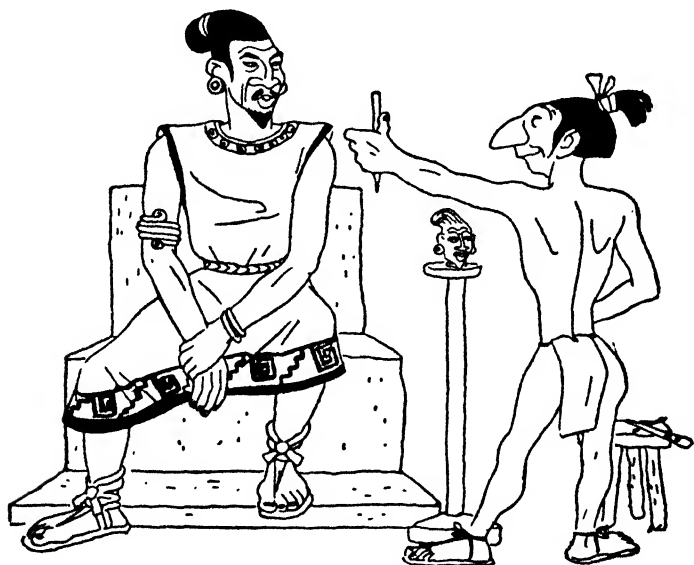
out of thin air but are backed up by the solid evidence of stone and pottery figures. There are a few other points about these bearded images that are worth noting.

First, most if not all of them seem to have been early—some of them very early—and few, if any, from late prehistoric times.

Second, the geographical range of the bearded figures appears

to have been limited to the states of Guerrero, Oaxaca, Vera Cruz, Tabasco and Chiapas—in southern Mexico—and Guatemala, south to Nicaragua.

Third, all the bearded figures were, quite naturally, made to represent the faces of men, but it seems rather peculiar that no figurines have been found that could be said to represent women of the same physical type.



There are probably other significant features, such as costumes, which could be deciphered, but enough has been said to warrant the suspicion that a good deal of interesting evidence has been ignored by the authors of the current version of native American history. It sounds like the worst kind of heresy, but one cannot help wondering if the old tendency to glorify native inventiveness may not have been more sentimental than sensible.

Instead of claiming that they were supermen who achieved in a few centuries the same things which the rest of mankind needed several millenniums to accomplish, it may be that the various tribes of Indians were just what they appear to have been—docile when treated decently, stolid, stoical in withstanding their own pain, indifferent to suffering in others, with a leaning toward



human sacrifice, sometimes accompanied by cannibalism, as at the dedication of the great temple to Huitzilopochtli, the War God of the Aztecs, when 20,000 victims were sacrificed and many of them eaten.

Maybe the advanced and often complicated traits which constituted their civilizations were not the products of their own unaided discoveries and inventions but, more logically, were the results of the instruction and guidance which they received from the bearded white men whom they later deified.

Maybe there is more significance than has yet been granted to

the fact that the regions in which the high cultures developed were coextensive with the stone and pottery images of bearded men and also with the legends of the bearded white gods.

So now to look over the situation and try to answer a few questions.

One of the first is, was there a large flock of white gods, as Bancroft implied? Or was it just one white man who traveled from one tribe to another, like a Fuller Brush man, with an alias in each district?

Then we should inquire as to whether these white gods may not have left some white or half-breed children behind them.

And then we must tackle the problem of who they were, where they could have come from, and how they got here.

The answer to the first of these questions—was there only one or more than one white god?—seems to be that there must have been several of them, as it would be practically impossible for one man to cover so much ground on foot, and at the same time stay long enough in each area to teach various tribes of Indians, speaking different unknown languages, the techniques of metallurgy, how and why to build temple pyramids, astronomy, a calendar system, hieroglyphic writing and the many other things which the average Indian would neither know nor care about.

A further argument for there having been a number of white men who were destined to become gods is that it would be natural to expect that each would ride his particular hobby, and this would help to explain why the Andean peoples, for instance, went in so strongly for metallurgy, while the Maya became involved with calendars and glyphs. In order to understand the actual mechanics of the diffusion of culture there are one or two points which it is well to bear in mind.

When, for instance, two unrelated groups of people come into

contact, and one of these groups possesses traits unknown to the other, before there can be any borrowing or lending of culture it is essential that the borrower be sufficiently advanced to be able to make use of the new knowledge. One of the reasons why the Crane Company has not yet opened a branch office in the Congo is because of doubt as to whether the Pygmies could be made to understand the advantages of modern plumbing.



It is also important to realize that when culture is passed from one group to another, the more simple the trait the more uniform will be its distribution. An agricultural group with knowledge of pottery making, for example, moves into territory adjacent to an agricultural group lacking such knowledge, and it is highly probable that the receiver will soon begin making pottery which

will be a local variation of that made by the provider. But, if Sears, Roebuck should send an expedition of salesmen to South Africa, the results would be, first, that each salesman would push his particular line; second, the distribution of new traits would be very selective and unequal; and third, it is 100-to-1 that most of the new traits would not be put to the use for which they were intended. If, for instance, you should succeed in disposing of a typewriter to a Bushman, it would be because he liked the musical qualities of the machine, since his language is made up a series of clicks. You would certainly be disappointed if you should expect a literary output.

So, in appraising the effect of the arrival of the bearded white men in Mexico and Central and South America, you will probably not be far wrong if you think of them as varying in individual intelligence, ability, interests and particularly in the degree to which they were able to instill new ideas into the different tribes with which they had to deal.

The need for such discrimination is well illustrated by comparing Sarmiento's white itinerant preacher, who appeared in Peru as a sort of John the Baptist, with Naymlap whose story, as told by the Jesuit Father Miguel Cabello de Balboa, reads like a tale from the Arabian Nights:

"The people of Lambayeque say—and with them agree all the folk living in the vicinity of this valley—that in times so very ancient that they do not know how to express them, there came from the northerly part of this Piru, with a great fleet of Balsas, a father of Families, a man of much valor and quality named Naymlap; and with him he brought many concubines, but the chief wife is said to have been named Ceterni. He brought in his company many people who followed him as their Captain and leader. But those among them who were of the greatest bravery

were their officials, who were forty in number, including such men as Pita Zofi, who was the trumpeter or player upon certain great shells that are much esteemed among the Indians. Another



was Ninacola, who was in charge of the litter and Throne; another was Ninagintue, in whose care was the drink of that Lord, after the fashion of a Butler; another was called Fonga Sigde, whose duty it was to scatter the dust of sea-shells upon the ground where his Lord was to Tread; another, Occhocalo, was his cook; another had charge of the ointments and color with

which the Lord was wont to adorn his countenance, this official being Xam Muchec. Ollopcopoc supervised the bathing of the Lord. Another very important official, much esteemed by his Prince, was called Llapchillulli, and he wrought shirts and clothing of feathers. With this retinue, and with an infinite number of other officials and men of importance, he (Naymlap) brought his person and house, already adorned and established."



We will go so far as to agree with Dr. Phuddy Duddy that concubines may have been an independent invention, but it would take a good deal of persuasion to convince us that any Peruvian Indian was independently responsible for trumpeters, litters, thrones, cupbearers, chefs, barbers and valets. If Naymlap was just another Indian we also object to his being given a bath by Ollopcopoc, and we would find it more reasonable to look elsewhere for the source of all this Oriental pomp and circumstance.

To the question as to whether these bearded men left children, the chances are they did; but one does not hear anything about any white goddesses, and so their offspring were probably half-breeds and did not rank as gods. The reports from Peruvian tombs of mummies with ash-blond hair and skulls to which red hair is still adhering may suggest such descent, but it's a wise mummy that knows its own father.

As to who they were, where they came from, and how they got here—this is a long story.

The World of 336 B.C.

THE SETTING OF THE STAGE

WE ARE AFRAID we have lapsed from grace. The evidence of course is there, and our authorities are unimpeachable; but it is nothing less than heresy to regard these Indian myths as more than were whimsies, and so we are back in the doghouse. But the worst is still to come.

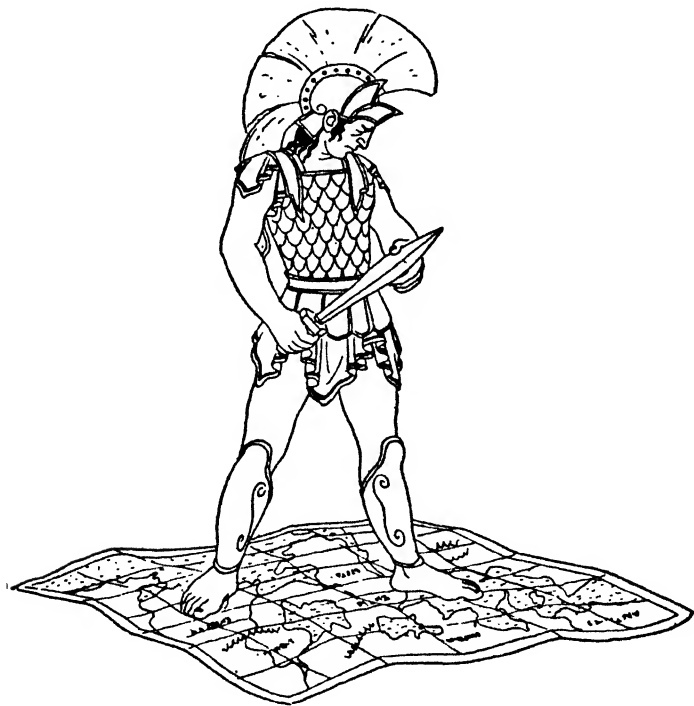
We now suggest that, for a little while, you rid your mind of all that you may ever have read or heard of American archaeology and let us take you on a flight through space and time, seeking and collecting the loose ends of those gossamer threads which, somehow or other, have missed being spun into the yarns of history.

Leaving America behind us and soaring westward across the Pacific, we can skip Polynesia on the outbound flight, as there are no human problems there for us to solve, chiefly because there are not yet any human beings in Polynesia.

And so to China, where there is an undercurrent of unrest. The dukes of Chou are growing soft after ruling for many years; the Hsiung-Nu are causing trouble in the north, and there is an increasing demand for a policy of isolationism even if it means going to the trouble of building a wall all the way across China to keep them out. This idea is not popular in Kansu and Shensi where the people realize that if any such wall is to be built they

will have to do all the work, and they are talking about pulling up stakes and going somewhere else to try to find a little peace and quiet.

In Turkestan the red-haired, green-eyed Sarmatians have been raiding the caravans, and trade with Persia is at a standstill be-



cause the Persians, who control all of Mesopotamia, Asia Minor, Palestine and Egypt, have decided that the Greeks are trying to encircle them and the time has come to wipe them off the map.

As far as wiping out the Greeks is concerned, the Persians are probably right. The city states—Athens, Sparta, Thebes—are at

each other's throats, ganging up on one another by forming leagues, in which, however, there is not much teamwork. Pericles and Herodotus died 90 years ago; Socrates drank his hemlock 60 years ago; Plato checked in 12 years ago; and the only men you hear about today are Demosthenes, who is pretty much of a politician, and Aristotle, who is trying to play every instrument in the band, and so it is doubtful if he can do any one thing really well. Greece seems to be all washed up.

Three hundred thirty-six B.C. You have undoubtedly recognized the general period with which we have been dealing but you may be wondering why we are flitting around from one country to another. It is because it is important to have as broad a perspective as possible of what was going on in other parts of the world at about this time. The events may appear to have no connection whatever, but we have set out to collect loose ends, and all threads are discontinuous until spun into a yarn.

So here is the situation at 336 B.C.:

In the New World, Indians were puttering away in much the same way as Indians have always puttered when left to themselves, and no one was bothering about the hows and whys of trying to concoct a civilization.

Polynesia was as bare of men as a frog is of feathers.

China was stirring in its sleep, uneasy from the mental indigestion of trying to live up to the teachings of Confucius, who had died 140 years ago.

In India little Moguls had big Moguls to upset and excite 'em; and big Moguls had bigger Moguls on every side to fight 'em.

The Near East was seething with philosophies and ideologies; everyone who could get anyone else to listen was orating, rabble-rousing and laying down the law as to what ought to be done. Plato had drawn up a Republican platform; Athens was over-

flowing with Deserving Democrats; Corinth was all for Union Now, Sparta for Isolation, Thebes for Appeasement; and across the Aegean, in Asia Minor, were the Totalitarian Persians protesting that they were in danger of encirclement.

And then began the most fantastic episode in history. A Greek guard drove a sword into Philip of Macedon, and Alexander, a boy 20 years of age, came to the throne.

This boy, who today would be a junior in college, began by mopping up Macedonia; he marched down into Thessaly where Athens, Thebes and the rest all vowed allegiance, turned in his tracks, headed eastward through Thrace, and crossed the Hellespont into Asia Minor.

Alexander had two very good press agents, Arius and Diodorus Siculus, and there is no need to follow the details of his campaigns, which have been fought over again and again on blackboards and tablecloths. It is enough to say that after defeating the Persians at the Granicus, Alexander won over many of the cities of Asia Minor with the magic phrase that he was fighting to restore Democracy. Moving south into Syria he defeated Darius at Issus, spent half a year on the siege of Tyre, reached Egypt late in 332 B.C., founded Alexandria and returned to Tyre. In the summer of 331 B.C. Alexander set out into Mesopotamia, crossed the Euphrates and the Tigris, met and defeated Darius again at Gaugamela, waited long enough to found a couple of cities, Alexandria (Arbela) and Nikephorion, and was off again after Darius to Babylon, Susa and Persepolis. After spending the winter of 331-330 B.C. at Persepolis, during which democracy suffered an eclipse while Alexander acquired a good crust of Persian grandeur, he followed Darius to Ecbatana, to Rhagae, to Damghan, where Darius was murdered by his companions and left for Alexander to find.

So ended the conquest of Persia, but Alexander had evidently made up his mind that the peoples to the east needed to be converted to Democracy. He pushed on, founding cities here and there, filling them with his camp followers, as good Democrats



should. Such was the beginning of Alexandria of the Arians (Herat), Alexandria of the Arachosians (Candahar), Phrada, Alexandria (Ghazni), and Alexandria of the Caucasus (Chari-
kar), all in Afghanistan. To the north, in Turkestan, fortified posts and colonies were sprinkled all over Bactria and Sogdiana, with an Alexandria on the eastern bank of the Jaxartes (modern Chodjend).

And, now, how far did these alarums and excursions spread to

the peoples off to the east? And what effect did these upheavals have upon the tribes of eastern Asia, upheavals which might, conceivably, have been felt in the New World?

We can begin by saying that the Alexandrian campaigns must have exerted a profound effect, not only on the peoples who were actually overrun, but also on others far removed from the theater of his operations. The invasion of Turkestan by his expeditions in pursuit of Darius certainly dislodged the nomadic tribes of Bactria and Sogdiana, and these in turn barged against those to the east in Sinkiang and Outer Mongolia, so that it is not too much to say that the cannoning of tribe against tribe may well have displaced groups of people all the way to China. As a consequence of such disturbances, it should not be difficult to understand how some of the eastern tribes could have started on the long trek to North America, and, since we know that the journey actually was made—not once, but many times—there seems to be a good deal of justification for believing that the campaigns of Alexander in Turkestan may have been the direct or indirect cause of starting such a migration from eastern Asia in 328 B.C.

However this may be, there is a much more significant point to be noted in connection with Alexander's colonizing policy and the cultural assemblages which were the resulting products.

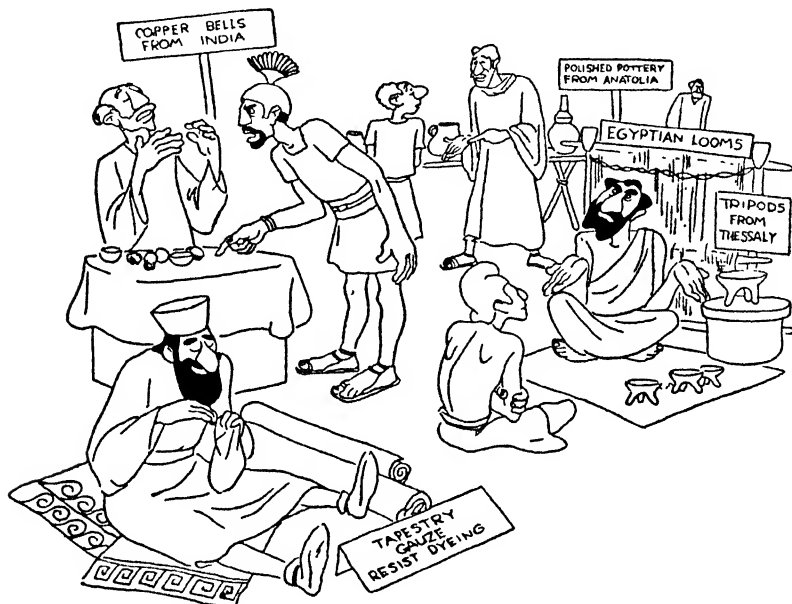
On several occasions in earlier chapters we have mentioned certain traits which were characteristic of some of the native American cultures, such as polished red pottery, various textile techniques, metallurgical processes, the vertical loom, figurines with "coffee-bean" eyes, and so on. Now, although many of these traits have often been combined to form various cultures in the New World, they do not always occur in identical combinations in the Old World. The vertical loom, for instance, which was in use from the Southwest down to Peru was exactly the same as that

found in Egypt. The eyes on clay figurines, which were made of clay pellets and which looked like coffee beans, were the same whether they came from the Southwest, Mexico or Thessaly. Polished red pottery from the Southwest, Mexico or Peru looks very much like that from Egypt or Palestine. So, with certain traits occurring in combination in the Americas and the same traits often scattered in Asia, it might well be asked how such things could have been carried from the Old over to the New World.

The campaigns of Alexander provide a surprisingly satisfactory answer, since, as you have read, he started from Greece, fought through Asia Minor, Palestine, Egypt, Mesopotamia, Persia and Turkestan. For nine years, from 336 to 328 B.C., his armies acted as a dragnet of culture, picking up new recruits and camp followers wherever they passed. This polyglot horde was then rewarded by having Alexandrias built for them to occupy in Afghanistan, Persia and Turkestan. As recorded in the "Cambridge Ancient History," in *Alexander: The Conquest of the Far East* by W. W. Tarn:

"Alexander was the greatest city builder of all time. He is said to have founded 70; some 25 are known for certain. The conditions of foundation varied greatly. There were absolutely new cities, like Alexandria in Egypt and Chodjend; royal residences or old sites turned into cities, like Candahar and Herat; existing towns enlarged and Hellenized, like Alexandretta. Besides these, there were towns that failed and were refounded by others, like Merv; towns that he planned and others built, like Smyrna; towns that other builders attributed to him or that attributed themselves; lastly, towns given him by romance, like Samarcand and Sian-fu. In this respect his successors carried out his policy whole-heartedly; all caught his inspiration and became great builders. He initiated what became a vast scheme of colonization

in Asia; differing from the older Greek colonization in that it was deliberately planned, that many cities were not on the sea, and that the settlers were not drawn from single cities, but were mixed. The typical Alexandria was settled with Greek mercen-



aries, traders, natives, and a few Macedonians. But this was only to start with. For the Greek mercenaries had native wives and were not the best medium for the spread of Greek culture. . . .”

For the man who wishes to gather up a little of this from here, a little of that from there, a little of anything else from somewhere else, combine them all and bring them over to North America as a cultural complex, the colonizing policy which Alexander practiced in Central Asia left nothing to be desired. There were conglomerations of peoples, their customs, their arts

and crafts, from all over the Near and Middle East, all thrown together in brand-new communities where there were no resident populations to absorb them and blur their outlines.

How far these colonists or their descendants may have penetrated eastward is a question about which it is fun to speculate, but the idea, presented to us by Tarn, that Sian-fu may have been founded by people even remotely connected with Alexander, is so pat that it seems made to order.

Sian-fu is situated in Shensi and had already been in existence for some time when Shih-Huang-ti made it his capital in 246 B.C. It also lies astride the main caravan route from China, through Kansu and Sinkiang, to Turkestan. If, therefore, some of Alexander's captains did actually invade China, their route would have taken them through what has since come to be known as Sian-fu, and there cannot be much doubt that the resulting upheavals would have been enough to have set large numbers of people in motion, so providing an explanation and a date for the first Mongoloid migration to North America.

Alarums and Excursions

"SOMEWHERE EAST OF SUEZ"

WE HOPE that you are beginning to enjoy this game of chasing loose ends because this chapter is going to be full of them. Remember that the hawsers which warp the *Queen Mary* to her dock were once nothing but a lot of loose ends.

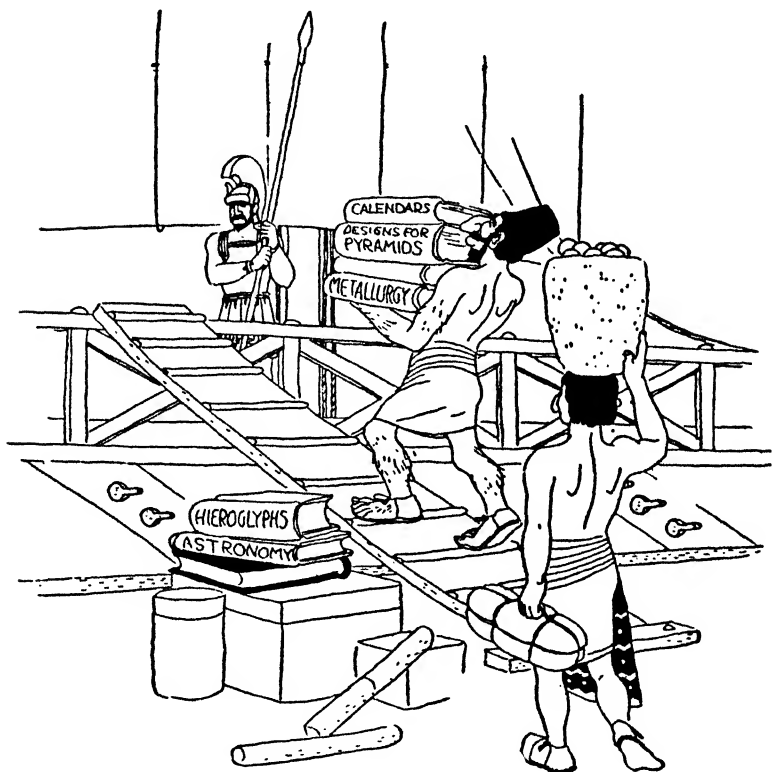
Back to Alexander—327 B.C. He has decided to invade India. From Bactria he marched and fought down through Afghanistan, following the valley of the Kabul to its junction with the Indus, near where Peshawar stands today. Here a number of boats were built, an operation that had been planned before he set out, since we are told in the "Cambridge Ancient History":

"Alexander greatly desired, as did Aristotle, to solve the problem of Ocean and the relationship of India to Egypt. He meant, therefore, to explore the southern sea with a fleet; for this purpose he took with him to India rowers and shipwrights from Phoenicia, Cyprus, Caria, and Egypt, and had already decided that his friend, Nearchus, should be admiral."

Soon afterward, in June, 326 B.C., Alexander defeated Porus at the battle of the Hydaspes and, after this interruption, returned to the job which was really on his mind—the building of a fleet which is said to have numbered 800 ships.

We are not here concerned with the campaigns in India or the

return of the army through the Mekran desert to Gulashkird—another Alexandria near the mouth of the Persian Gulf—which was reached early in 324 B.C. We are concerned with the voyage of



Nearchus and his fleet to Susa, at the head of the Gulf, and the fact that he lost only four ships.

It is still more important that when Alexander made Babylon his capital in the spring of 323 B.C. he concentrated all of his attention on marine projects. He sent again to the eastern coasts of the Mediterranean and enlisted carpenters, shipwrights, sailors, and

brought down great quantities of stores and supplies of all kinds. He proposed not only to colonize the shores of the Persian Gulf but to establish sea routes from Babylon to India and Egypt. The Tigris was cleared. An Alexandria (Charax-mesene) was founded at the delta, and a great harbor basin begun at Babylon



to accommodate his merchantmen. He revamped the Babylonian canal and irrigation system and planned to carry off the floodwaters of the Euphrates by way of the Pallakopas cutoff. In India when he started to build his boats on the Indus, Alexander had been satisfied with triakonters, 15 oars to a side, but now that his heart was really set on maritime exploration he was building triremes, quadriremes and quinqueremes, three, four and five

banks of oars—great ships carrying crews of 500 to 600 men.

The plan was to begin by exploring the coast of Arabia. A preliminary survey had been made. The boats were built, and Nearchus reported that the fleet was ready and waiting with all equipment and supplies on board—and then, just when the stage was set, Alexander came down with a fever, grew rapidly worse and died on June 13, 323 B.C.

We are confronted with a very interesting situation—one of the strangest loose ends in all history. Here was a large company of Alexander's military leaders and friends, a great fleet of ships built and equipped for exploration in unknown waters, manned by the most experienced seamen of their day—Phoenicians from the coast of Syria, Greeks, Cyprians, Cretans, Egyptians—and suddenly the mind that was directing the enterprise was snuffed out. And what happened?

We have the most minute details of what Alexander ate and drank before he died, the progress of his illness, what he said and when he died. We know that he was no sooner dead than his generals were at each other's throats like a pack of wolves, and that the empire was split up and torn by wars. But not one word about the fleet!

Nearchus, who could be expected to have taken command of the fleet, left promptly to join Antigonus in Phrygia, and with pandemonium raging on shore it is a fair guess that these crews upped anchors and set out for new lands where life might be less hectic; but if they did, from that day to this there is no word of where they went or what happened to them. All that we have to go on is that some of the ships were very large for their day; that there was a large number of such ships; that they were manned by competent seamen from the eastern end of the Mediterranean; that they were fully supplied and equipped; that hell

had broken loose on shore; that the date was summer, 323 B.C. The rest is guesswork.

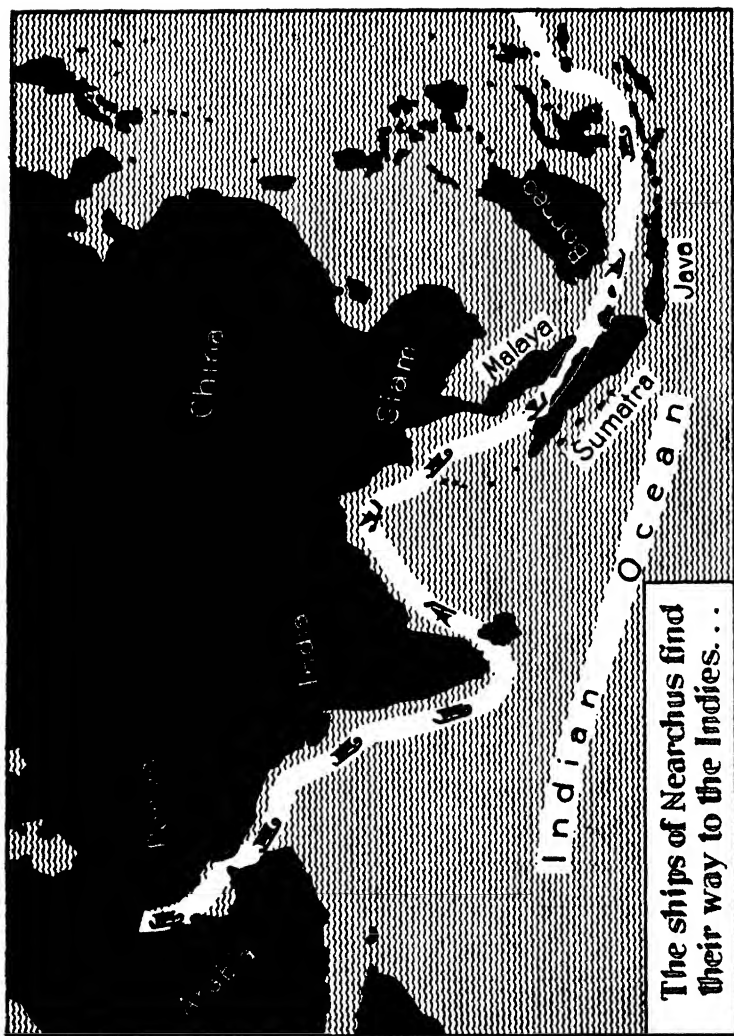
So, now, to guess as to where they may have gone; but in our guessing we will be governed by certain facts and conditions so that when it comes to a choice of alternatives we can decide upon the most logical and probable course.

Such a choice at once confronts us as we leave the Persian Gulf and head out through the Strait of Ormuz into the Gulf of Oman. Shall we skirt the desert shores of southern Arabia, past the Hadramaut and head for Africa? Or shall we steer to the east along the coast of southern Iran, to Baluchistan and on to India?

The first straw in the wind to help us in making this choice is, appropriately enough, the southwest monsoon which begins in June in these latitudes and blows steadily from the west until November, when it shifts to the northeast from December to May.

A second, and a very important factor, is that the southwest monsoon brings the rains of June to September to southern Asia, whereas to the west the best that Aden can show is a rainfall of only three inches during the winter. You will not have to use much imagination to realize that the problem of water supply for a fleet of this size must have been something of a headache for the men responsible for making decisions. If any further argument is needed you can say that many of the members of these crews had already made the voyage from the Indus to Susa, and it is more probable that they would be in favor of retracing a known course than of exploring the barren unknown shores of Arabia.

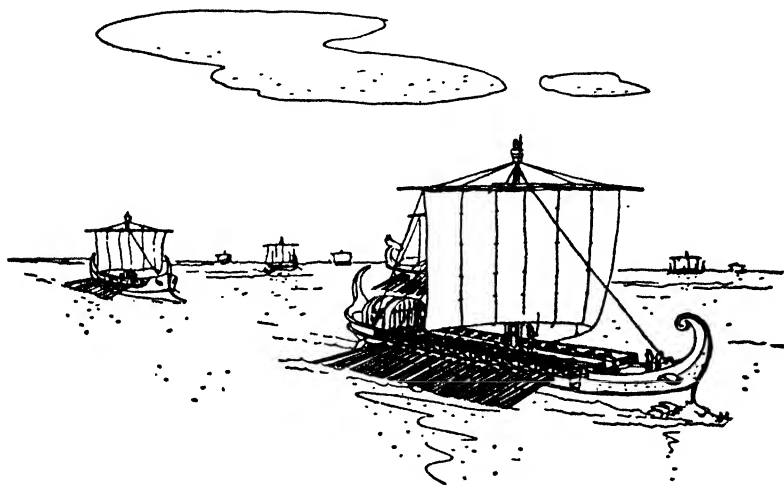
We can begin by saying that when the armada cleared the Strait of Ormuz a course was laid to the east, sails filled out with a following wind, the coast of Baluchistan, with its hairy savages whom the Greeks called *ichthyophagi*, fish-eaters, slipped past to



The ships of Nearchus find
their way to the Indies...

port and the fleet again dropped anchor at the mouth of the Indus.

Then came another decision. Some may have chosen to stay and settle down, indistinguishable from the debris of the Alexandrian campaigns; some undoubtedly had died or been killed; but, faced with the prospect of trying to found colonies among people



with whom they had been at war only a year ago, the majority decided to continue their voyage down the west coast of India. If there was any lack of hands to ply the oars they persuaded or shanghaied the natives to accompany them.

Down past Bombay to Cape Comorin at the tip of India, through Palk Strait between Ceylon and the mainland, north past Madras and up the east coast into the Bay of Bengal, past the mouths of the Ganges, and so to Burma, the coast of Siam, along the west coast of the Malay Peninsula, to the Straits of Malacca, and out to the Indies.

At this point you may be thinking that we have gone too far and too fast on nothing more than guesses, but we are going to show you that these ships and men actually did reach the Pacific, and the route that we have suggested is merely our idea of how the voyage could most probably have been made. We could have stopped and spent some time on the coast of Malabar or Madras or the Ganges and waited to pick up some of the big canoes which the natives used. Or we could have told you about the arts and trades of the natives who joined the fleet: things such as casting metals by the lost-wax process, and other metallurgical techniques; their knowledge of zero and the zodiac; the making of bark cloth and many textile processes, such as gauze weaving and resist dyeing; but these are all aces which we are keeping up our sleeve until the right time comes, and we do not want to confuse you now with too much detail.

We are heading out through the Straits of Malacca, but before going any farther there are a few things which require attention. With all of these ships, men, women and ideas on our hands, we have many more than are needed for our immediate purposes and so we will begin by leaving some of the Greek contingent on Sumatra in order to account for the line of native princes who claim direct descent from Alexander. We can also leave a boat-load or two in Malaya to explain how the many legends of the so-called Sultan Iskander reached this neck of the woods.

Clearing the Straits past Singapore we can spare a few more ships and people as they turn north to Cambodia, and some can drop off as we coast along the northern shore of Java. None of these groups is really lost, however, as they will all pay us rich dividends in the days to come. As you undoubtedly know, the great temple pyramids of Ankor Vat in Cambodia and Borobudur in Java, though relatively late, were the flowering of earlier

cultures in the same regions which date back to the time of Christ. The people who founded the early cultures are recognized as having come originally from India, so you can see how neatly everything is fitting together. By this time you do not need to be told that we shall soon be able to make good use of the trail that is being laid from India, through the Straits and out to the Indies.

But possibly you are losing the thread of our plot by having to look up these various places on a map, so we will take a moment to make it all simple and clear. As you pass through the Straits of Malacca, with Malaya on your left, you find yourself in Indonesia, or that section of the East Indies which includes Sumatra, Java, Borneo and the Celebes. Beyond and to the east lies Melanesia, beginning with New Guinea and continuing on to the Solomons, New Hebrides and Fiji. To the northeast, strung along the equator, are the islands of Micronesia—the Carolines, Marshalls and Gilberts. And, in a great arc which touches mid-Pacific, is Polynesia, with Hawaii at the northern end and the rest curving south through the Marquesas and Societies to New Zealand. If, however, your mind is tingling with anthropology and you can't be bothered with geography, you can forget these names and lump them all as Amnesia.

And, now, back to Anthropology.

Of Men and Ships and Great Waters

AFTER LEAVING Borneo we are going to head east past New Guinea, and you should know something about the natives.

There are, as you may remember, two main branches of the Negroid family—one in Africa, the other in Melanesia. In an earlier chapter we tried to squirm out of a rather tight spot by suggesting that some of the resemblances between these two groups might have been due to a common Negrito factor in their ancestry; but if you don't like this explanation you can go ahead and write a book about "Men Out of Africa," and try to show how Negroes found their way to the far ends of the earth. We have tried it and it doesn't seem to work, and so we stick to our idea that Negritos were the low men on these two human totem poles and that this accounts for some of the similarities and also for some of the differences between the African Negroes and the Melanesian Negroids. The skin color of both groups, for instance, is black—often coal black; hence the name Melanesia. Both have long, narrow heads. Both have woolly, black hair, but in the African Negro it is short and kinky, whereas the hair of the Melanesian Negroid grows in a frizzly, black mop. Both have protruding muzzles, but this so-called prognathism is more pronounced in Africa than in Melanesia. The most marked difference between the two groups, however, is in their noses. That of the African Negro is short, wide and flat; that of the Melanesian

is very large, convex, ending in a big blob which is best described as a caricature of the Armenoid or Jewish nose. No less a person than Earnest Hooton has said, "Why this exaggerated imitation of an Armenoid nose should appear in New Guinea is a mystery."

This looks like another chance to do a good turn, and as Hooton has helped us out of some pretty tight spots we can now



partly repay him by telling him that this nose is not an imitation at all. It is the real thing, because these Negroids in New Guinea acquired their Armenoid noses directly from the producer. You need only to cast your eye over some of the boats of our fleet to see the simon-pure article adorning the faces of the Armenians, Syrians, Phoenicians, Cyprians and Egyptians who make up a large part of the crews. Judging by the prevalence in New Guinea of this type of proboscis, some of these ancient mariners were good mixers and made themselves at home. Their progeny will provide us with valuable evidence in demonstrating that Alexander's

fleet actually made the voyage from the Gulf of Persia, past India and out into the southwestern Pacific as far as New Guinea. And now, before heading out into blue water, we are going to take a little time and make a sort of inventory.

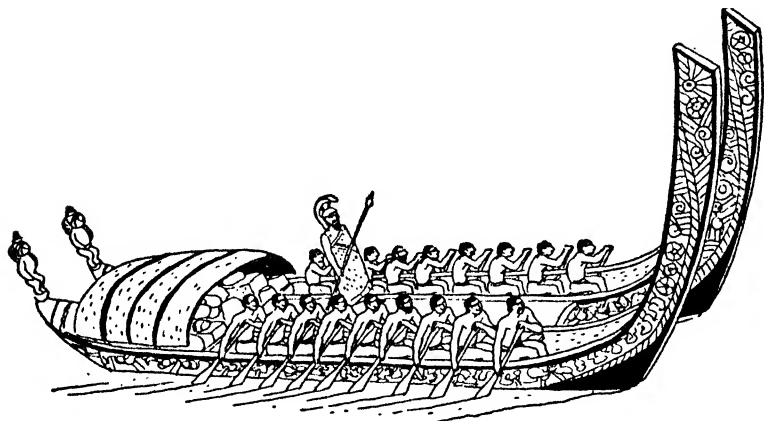
Of the fleet of several hundred ships which left Susa a few years ago, a few have been wrecked. Some have been dropped off at various points. A few turned north up to Cochin China. But there are still a goodly number leading the van, escorted and followed by many smaller boats which, on close inspection, are found to be good, sizable craft, often 100 feet or more in length.

These boats have an important part to play, so you should know all about them. The foundation is a great dugout canoe made by burning and chipping away the inside of a huge log, and then the sides have been raised by adding planks to increase the freeboard. The planks are skillfully sewed to the foundation with strips of bamboo or coconut fiber, and the joints caulked with leaves and pitch or resin. The bow and stern are also raised by the addition of what look like great fins, covered with carvings of intricate design and excellent workmanship. All are equipped with lateen sails such as are to be seen throughout the Mediterranean, and which, as you probably know, are triangular in shape and suspended on a yard at an angle of about 45 degrees to the mast.

Some of the smaller canoes have been made seaworthy by outriggers—a cigar-shaped wooden float held parallel to the hull by horizontal booms. In the larger craft this idea has been carried a step further by substituting another canoe for the float, the result being two parallel canoes, spaced and held in position by spars on which a deck has been laid, and on which food, women, children and supplies have been stowed. There is usually some sort of awning over the deck, and in one or two cases it looks as if they

have even built a small house. Food can be cooked on fireplaces of sand spread on the floor.

There is a rather hazy resemblance between these great double canoes and some of the ships of the fleet. It looks as if some of the Levantines had taught these people how to make and handle the lateen sails, and the high prows seem to have been copied from the Greek ships. A further suggestion can be seen in the rows of



paddles along each side, sometimes thirty or more, which may have been inspired by the banks of oars of the triremes. In case there is still any doubt in your mind as to the route which was followed by the fleet or as to where these canoes came from, it should help to reassure you to tell you that canoes of this kind are known on the Malabar coast of southwestern India, in Madras on the east coast and in Burma and Siam—exactly along the route we have been tracing.

As to the men and women in these big double canoes, it requires only a glance to see that here are no slaves or captives. They are a grand-looking lot—tall and sturdy, with black, wavy hair

and light-brown skin of about the shade which is the ideal of bathers all over the world—and above all they seem to be happy. Their chants and laughter are all the evidence you need to make you realize that they are not only sharing in a great adventure but are doing so because they like it. From all of which you have probably been able to recognize that we are describing the people who later will be known as Polynesians.

With plenty of time on our hands, let us now try to decide just who the Polynesians were, and one way of doing this is to begin by deciding who they were not. They were certainly not Pygmies like the Tapiro or Mafulu in New Guinea, the Semang in Malaya, or the Aëtas in the Philippines. They were not Australoid, like the Australians, the Papuans in Melanesia, or the Ainus in Japan. They were not Negroid, like the Melanesians. They were not Mongoloid, like the Japanese. And although in some cases it is possible to recognize a strain of some or all of these Pacific peoples, it is generally agreed that there is a strong white element in the Polynesians, the origin of which cannot be traced to any other people in the Pacific, and they must, therefore, have hailed from some land beyond its boundaries. What with one thing and another, we are doing a good deal of eliminating. The Polynesians were not originally Pygmy, Australoid, Negroid or Mongoloid. If they sailed into the Pacific from somewhere beyond its shores, they certainly did not enter through Bering Strait or the Straits of Magellan, so they must have come from the Indian Ocean, probably through the Straits of Malacca, past Singapore. And, what is more, they must have known a good deal about handling boats before they entered the Pacific or they would never have been able to reach New Zealand, the Society Islands, the Tuamotus, the Marquesas, Hawaii and Easter Island. Not only must they have known about boats, but, for them to

have done what they did, the boats must have been good sizable craft, large enough for both men and women and for carrying adequate supplies of food and water.

We have said that there is a white strain in the Polynesians but we can be even more specific. Haddon speaks of this strain as European. Buck calls it Europoid. Dixon says Caspian, meaning white and blond. Hooton merely calls it white. Peter Buck, director of the Bishop Museum in Honolulu and our leading authority on the lore and customs of his people, says that "the ancestors of the Polynesian people probably did live in some part of India," and he also quotes the ideas of others that some of them may have come originally from the valley of the Ganges in India, from Egypt, Mesopotamia, Persia or Baluchistan.

The straws are all blowing eastward, and it is time for us to follow and see what is going to happen. Even after allowing for the crews which dallied in Melanesia to bequeath their Armenoid noses to their offspring, and those which may have coasted up to China and beyond, we have still to populate the Society Islands, the Tuamotus, the Marquesas, Hawaii and Easter Island, and maybe one or two other places; and we propose to begin this migration by means of our fleet and leave it to the rag, tag, and bobtail who have been following in our wake to find and populate the islands which we by-pass. A few years have passed since the Gulf of Persia was left behind, but our ships are still under the command of seafaring Levantines from the eastern Mediterranean. All vacancies in the crews, and all of the canoes, have been filled with men and women from the coasts of India, from the valley of the Ganges, from Burma, Sumatra, Java—polyglot, polygamous, polygenous. We are going to call the product Polynesian.

Again boats are stocked and supplied. From western New

Guinea and the Isles of Spice, flotillas of long rakish craft set forth, sails drawing with the southwest monsoon, paddles flashing, men chanting. On the decks women, children, pigs, coconuts and dried fish are stowed. And it only needs someone to give a Polynesian version of Kipling's*

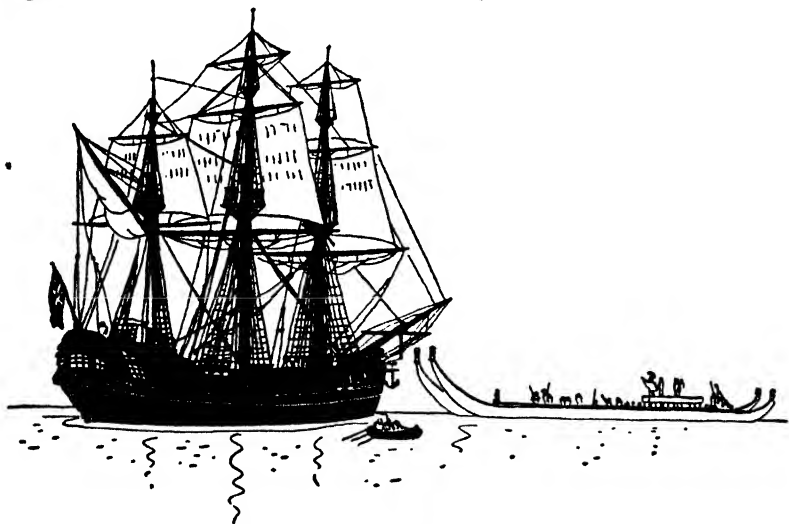
*You have heard the beat of the off-shore wind,
And the thresh of the deep-sea rain;
You have heard the song—how long! how long?
Pull out on the trail again!
The Lord knows what we may find, dear lass,
And the Deuce knows what we may do—
But we're back once more on the old trail,
our own trail, the out trail,
We're down, hull down on the Long Trail—
the trail that is always new.*

* From *Departmental Ditties and Ballads and Barrack-room Ballads* by Rudyard Kipling, copyright 1892, 1893, 1899, 1927, by Rudyard Kipling, reprinted by permission of Mrs. G. Bambridge and Doubleday & Company, Inc.



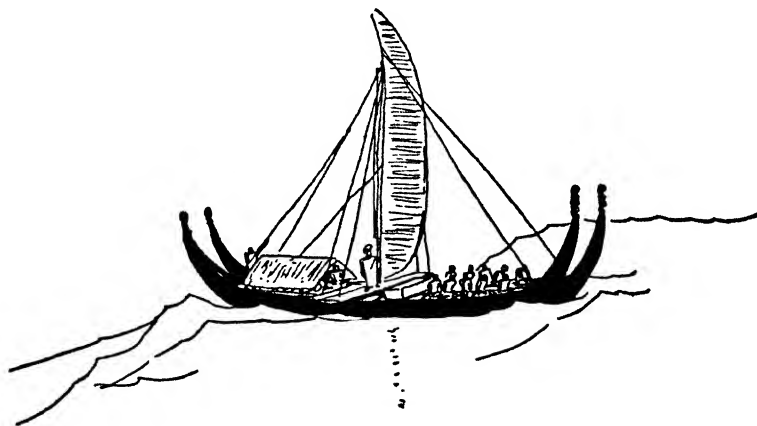
Anchors Aweigh!

TO OUR MODERN eyes, accustomed to watching the horizon from the upper decks of an ocean liner, a hundred-foot canoe bobbing around in mid-Pacific looks absurdly small, and we wonder how any people could have had the courage to sail off into the blue in such a tiny craft with no idea what-



ever of what lay ahead of them. There can be no question that the men and women who colonized the outer islands of Polynesia took part in one of the greatest episodes of all human history, and it is a great pity that we do not know more about their brave adventure.

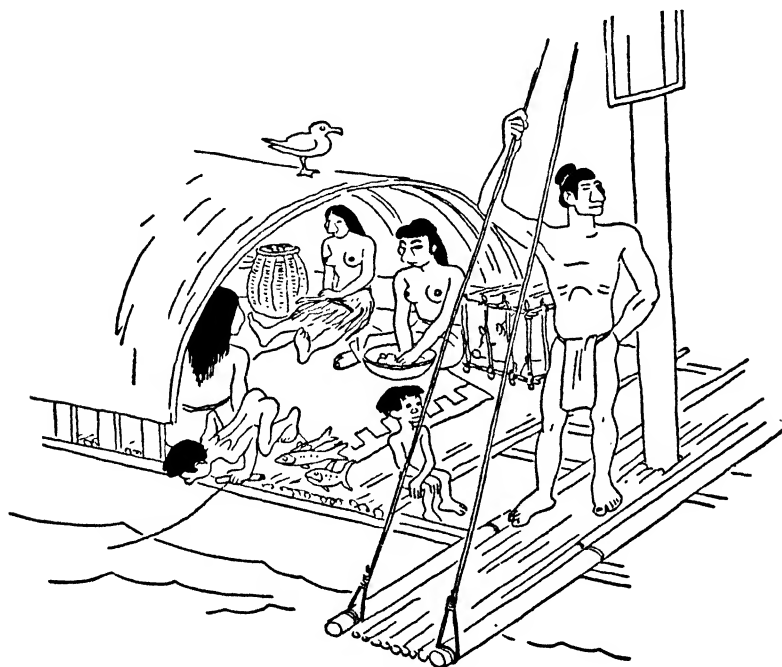
But we are not entirely in the dark. We can be sure, for instance, that the islands of Polynesia were not populated by random boatloads of natives who had merely been blown off their course. The discovery of the islands was the result of voyages of exploration that were planned in advance and for which adequate preparations were made. They were made by men who had a sufficient knowledge of navigation to take advantage of nature's guides—the sun by day, the moon and stars by night,



the prevailing winds, the direction of currents, the flight of birds—by men who had gained a thorough knowledge of the sailing and handling of seagoing canoes from their own experience and from the traditions of their ancestors. And, lastly, it must be realized that their craft were capable of making such voyages when properly handled.

When visited by Captain Cook on his voyages to the South Pacific between 1764 and 1780, the Polynesians were using plank-sewn dugout canoes with outriggers and great double canoes, both equipped with lateen sails such as those that we have

described and which are also known on the coasts of India, Burma, Siam, New Guinea, Fiji, Samoa, Hawaii, the Tuamotus, New Zealand and Easter Island. Captain Cook was unreserved in his praise of Polynesian seamanship and was deeply impressed by their ability to sail a good deal closer to the wind than he could



with his square-rigged ships. As evidence of his appreciation he provided us with detailed drawings of such a canoe, which he saw at Tongatabu, the southernmost island of the Tonga group. With hulls up to a hundred feet in length, these craft were not only seaworthy but capable of carrying a large number of people and their supplies. Peter Buck* tells us that, "On voyages for

* From *Vikings of the Sunrise* by Peter Buck, Copyright, 1938, by J. B. Lippincott Co.

settlement, in which provisions, plants, seed, tubers, pigs, dogs, and fowl were carried in addition to women and children, the large double canoes could readily accommodate sixty or more passengers." He also emphasizes the value of sweet potatoes and coconuts on such voyages, and says that these were planted as soon as colonies were established.

It is also important to bear in mind that women accompanied their men on these voyages of exploration and colonization, as otherwise the islands would never have been populated. An instance of what happens when men go off gadding by themselves,



without their women, was the first landing on Pitcairn Island. You may remember that when the men from the *Bounty* settled on the island they found pictographs and the outlines of houses which had fallen into decay, and it seems probable that these may have been the work of men who had reached the island and lost their canoe in making a landing, and when the last man died the

episode was ended. On the other hand, the men of the *Bounty* and their Polynesian wives provide an equally good example of how an uninhabited island can be populated when women accompany their men on voyages of exploration.

And so at about 300 B.C. our fleet is working eastward through Micronesia. First the Carolines, then the Marshalls, then through the Gilberts and across the equator, dropping down through the Ellice Islands to Samoa, and as this is a good central point we will pause for a moment before pushing out into mid-Pacific.

To help you in visualizing voyages of exploration such as we are describing, we will tell you of the way in which we think it may have been done. We suggest that a screen of ten or more canoes was sent forward, spread well apart but keeping within sight of one another, so as to comb as wide a swath as possible, maybe drifting at night. In this way, if the men at either extremity of such a formation should sight land, the whole fleet could assemble and a formidable force would be available to make investigations or to settle any trouble with hostile natives.

It may also make it a little easier for you to understand how it was possible to discover and colonize the islands of Polynesia if you will look at a map of the Pacific and notice the great number of islands which lie along the equator and off to the east of Fiji. Some of these are grouped into archipelagoes such as Tonga, Samoa, the Societies and the Marquesas. Others are isolated, such as Tongareva, Rarotonga, Pitcairn, and hundreds of others. It is rarely more than 200 miles from one island to another, and a formation of ten canoes, spread out in a fan five miles or so apart, could pick up such islands without too much difficulty. When it came to reaching out to Hawaii and Easter Island, the gaps were longer—sometimes 1000 miles or more—but we know that the

boats were well supplied before starting on such voyages, and we are also told that sharks were caught en route and that the water supply was often renewed by rains.

We mention these things not to minimize the dangers and difficulties of these voyages of exploration but to try to show how the dangers and difficulties may have been overcome by the men and women who, we know, actually made such voyages.

And so, in some such way, the islands of Polynesia were populated. It was not all done at one time, and it was not all done by exactly the same people. The Polynesians of New Zealand, the Marquesas, Mangareva and Easter Island are long-headed; those of Hawaii, Samoa, and Tonga are broad-headed, and there is also a wide range of variation in other physical characters, such as the nose, stature, hair texture, et cetera. All of which is not surprising when you remember that we started from Susa with broad-headed Syrians with large, Armenoid noses, long-headed Egyptians with high, narrow noses, and all sorts of Eastern Mediterranean and Indian types.

From Samoa it is only a scant 300 miles to the Tonga group, and about 800 more to Rarotonga, then an easy 600 to Tahiti. There are choices to be made when the easternmost Tuamotus are reached. You can take the northern route through the Marquesas and so up to the equatorial countercurrent which will help you along on an eastward course at the rate of 24 to 36 knots per day, and from July to October you can also count on the southwest monsoon east of 150 degrees. Or you can choose a middle course past the Gambiers to Pitcairn, Henderson and Ducie, and to Easter Island, 1000 miles to the east. Or, if you are in a hurry and like a good stiff breeze, you can drop south a few degrees and pick up the roaring forties where the brave west winds will blow the fillings out of your teeth.

There is very little doubt that at various times each of these courses has been chosen, but, for our purposes, we are going to head up to the Marquesas and the equatorial countercurrent and see what happens.

Caribs and Arawaks

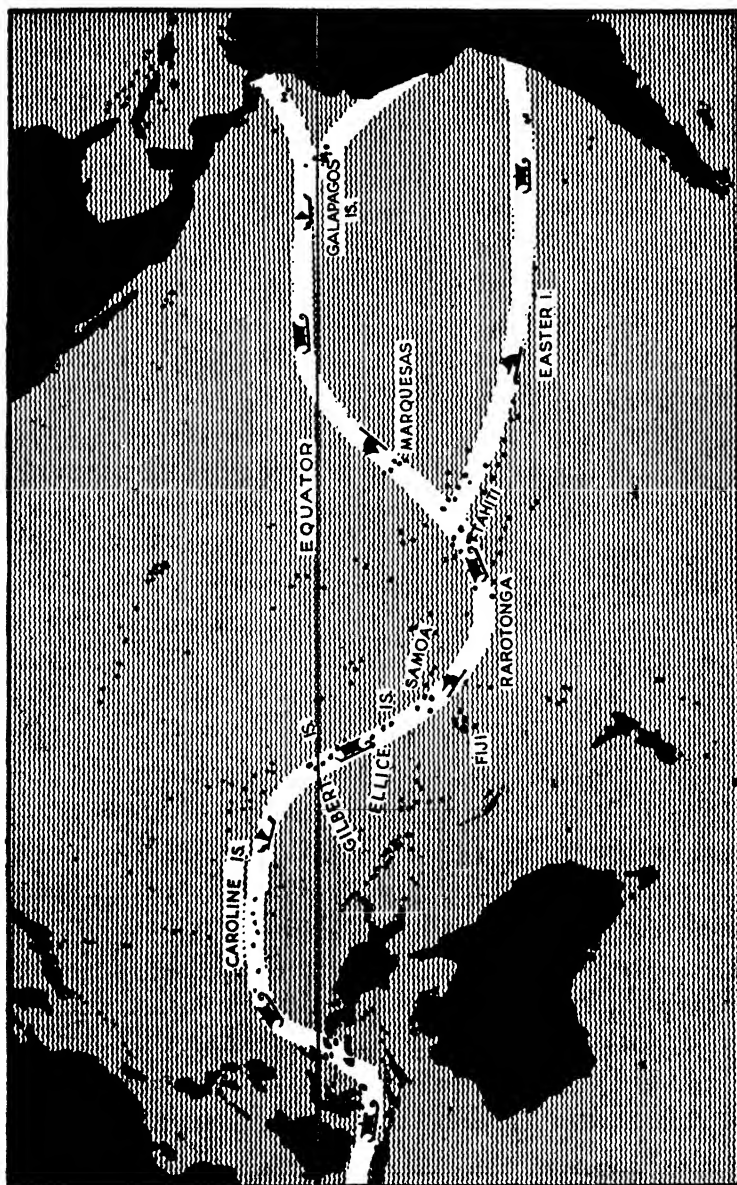
BY CANOES—OUT OF OCEANIA

OUR TALE of the discovery and colonization of the islands of Polynesia has dealt with those bold explorers who set out through Micronesia to find new lands and found them. But what of those equally daring souls who, in their turn, headed eastward from the outer islands to discover still other lands?

As a fourth verse to his *Cargoes*, Masfield *might* have written:

*Out from Nuḵu-hiva in a long low dugout,
East toward the sunrise on a course well laid,
With a cargo of bark cloth,
Quipus, stone clubs,
Coconuts, stilts and slings, and fine carved jade.*

Our purpose is painfully clear. Here we are in the easternmost islands of Polynesia with a fleet of large Greek ships and ocean-going canoes, manned by Levantines and Polynesians, who were bearded, who had skins as light as those of Europeans, who knew enough about navigation, and who possessed boats which were sufficiently seaworthy so that they could comb the mid-Pacific and colonize its islands. The time has come to credit them with the last leg of the long journey and bring them to the western shores of America.



That such voyages were possible, there is no doubt. Polynesians are known to have made the voyage from Tahiti to Hawaii, a distance of 2300 miles, and this must have been done without any help from the ocean currents, all of which in these latitudes run from east to west or west to east.

From the Marquesas to the Galápagos the distance is about 3000 miles, but this route has the advantage of the equatorial countercurrent with a strong easterly drift of 1 to 1½ knots per hour. For boats equipped with sails, as these were, there would be additional help from the southwest monsoon. These favoring currents and winds were, of course, the reason for our choosing the route by way of the Marquesas, and you can be quite certain that the men who made these voyages were thoroughly familiar with such conditions and capable of making the most of them. Last but not least of the advantages of swinging into the equatorial countercurrent is that it runs as straight as an arrow to the Galápagos Islands, 500 miles off the coast of Ecuador, before it winds up in the Gulf of Panama, between Panama and Colombia.

So the voyage was possible, and it only remains to show that it actually was made, not only once, but on many different occasions.

And now you may be surprised to learn that in spite of all the groans and protests of Dr. Duddy we are not the first or the only heretic to whom this idea has occurred. Writing of the introduction of the sweet potato into Polynesia, Buck * has this to say:

"The unknown Polynesian voyager who brought back the sweet potato from South America, made the greatest individual

* From *Vikings of the Sunrise* by Peter Buck, Copyright, 1938, by J. B. Lippincott Co.

contribution to the records of the Polynesians. He completed the series of voyages across the widest part of the great Pacific Ocean between Asia and South America."

Buck also quotes the late Roland B. Dixon:

"The plant could only have reached Polynesia from America by the aid of human hands, and since we have no evidence that at any time the Indians of the Pacific Coast of South America, where the sweet potato was grown, had either the craft or the skill for making long sea journeys, we are forced to conclude that the transference of the plant was carried out by Polynesians. At some time a party of these intrepid sailors must have reached the Peruvian coast, and have taken this valuable plant back with them to their island home."

To which he adds:

"The Peruvian coast is specified because in the Kechua dialect of north Peru, the name of the sweet potato is *Kumar*. As the general Polynesian name for the plant is *Kumara*, the tuber must have been obtained from an area that used the name *Kumar*."

In other words, these two men—one the recognized authority on the history of his people, the other an avowed opponent of the diffusion of culture from the Old to the New World—not only agree that Polynesians succeeded in reaching the coasts of America; they even go so far as to say that these same Polynesians, after loading up with sweet potatoes, turned around and managed to *return* to the Marquesas!

Now, it is one thing to set out eastward from Polynesia and hit the broad side of two continents which stretch from the North to the South Poles, but it is quite another to leave the west coast of South America and make a landfall on a group of tiny islands out in mid-Pacific. I should expect to run into trouble, and plenty of it, if the case for the Polynesians having made the last leg of the

voyage across the Pacific depended upon the need for picking up a small island—such as Easter Island, about twelve miles long—rather than the 10,000 miles of continuous coast from Bering Strait to Cape Horn. When, therefore, it is granted that the Polynesians were capable of covering the distance from the west coast of South America to the outer islands of Polynesia, there cannot be the slightest doubt that the eastward voyage to South America would have been very much safer and easier than the westward trip to the islands.

The idea of transpacific contacts has lately been receiving increased attention. In a recent issue of the *American Anthropologist*, the late Gilbert Lewis argued strongly against the mathematical probabilities of the duplicate independent invention of those traits that are shared by the peoples of Asia and the Americas, and advanced the theory that these traits had been originated in South America and had then been diffused westward across the Pacific. More recently, one reads of the *Kon-tiki* expedition in which six Scandinavians floated westward from Peru on a raft of balsa logs, hoping to drift and sail across 4000 miles of open water to the Society Islands, and so demonstrate the possibility of westward contacts across the Pacific. As one diffusionist to another, I should not cavil at these ideas, but it seems to my mind to be fairly clear that these traits can all be shown to have been earlier in Asia than in the Americas, and there are certainly older and broader backgrounds of navigation and exploration in the Old World than in South America. If I had to cross the Pacific in an open boat, I should much prefer a double canoe to a raft, and for a navigator I should choose a Polynesian rather than a Peruvian. So I shall stick to my idea of an eastward passage from Asia to the Americas.

The ideas propounded by Dixon and Buck open up an entirely

new range of the possibilities of prehistoric connections between Asia and America through the Pacific islands, and, in view of what they have said, it certainly should no longer be regarded as absurd to take these long voyages into account when considering the peoples, cultural traits and influences that may have reached the New World prior to 1492. Once you get accustomed to the idea that such voyages were possible, you may agree with us that they not only actually took place, but also that there were a great many of them, spread over a long period of time, which accounts for the conditions and situations in Central and South America that cannot be explained by migrations via Bering Strait and North America.

Possibly you would like to trace some of these connections for yourself, so we will merely suggest one or two outlines and leave it to you to fill in the details.

There is, for instance, an interesting set of circumstances which should repay investigation if the investigation were carried out with the possibility of transpacific voyages in mind. As we have told you in earlier chapters, the Pygmy peoples were the first to lead the way out to the islands off the east coast of Asia. They were followed by Australoids, who, while hard on their heels, did not overrun the Pygmies.

Then came the Negroids of the Oceanic variety, and these definitely passed over and beyond the Pygmy-Australoid limits. In fact, Dixon thought that some of these Negroid explorers had actually reached the outer islands of Polynesia before the arrival of the Polynesians themselves, as shown in the following quotation:

"The theory has long been expressed that there was a 'Melanesian,' *i. e.*, a Negroid element, in the peoples of parts of Polynesia, and this has been generally explained as having been

absorbed by the Polynesian ancestors during their passage through Melanesia. The alternative theory that a pre-Polynesian stratum of 'Melanesian' (*i.e.*, Negroid) characteristics was widely spread throughout Polynesia has been decried. The analysis of the data seems, however, to my mind, to leave no option but to accept this outlawed view, for it is difficult to see how so large a proportion of 'Melanesian' factors (amounting to nearly 70 per cent) could have been brought to far-off Easter Island as the result merely of the 'absorption' of these elements in transit."

This opens up some interesting speculations for which it should not be too difficult to obtain evidence in support or denial.

One of the first questions to be raised by Dixon's theory would be as to the length of time that elapsed between settlement of the outer islands by Melanesian Negroids and the arrival of the later Polynesians.

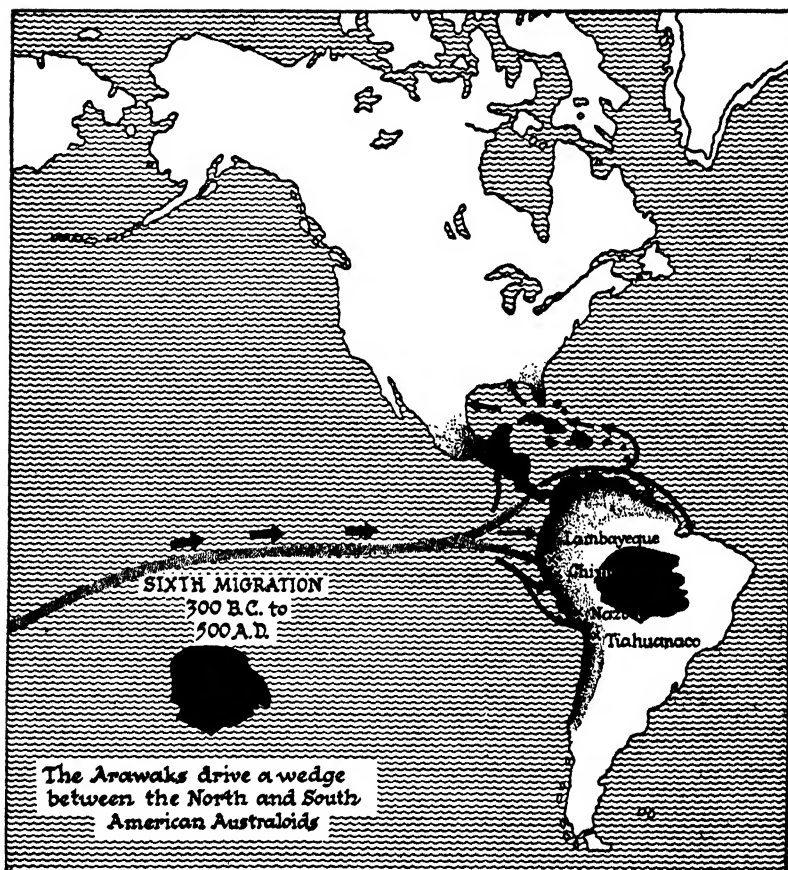
Another important question would be the kind of boats the Melanesians might have used in navigating the 1000 miles of open water between Ducie, the easternmost of the Tuamotus, and Easter Island.

Then, granting the Melanesians reached Easter Island, an even more interesting question would be as to whether they could not have reached the west coast of South America by the same means.

The reason why these questions are of such interest and importance is that there are two large Indian families in South America, the Carib and the Arawak, neither of which can be traced to any recognizable source in northeastern Asia and neither of which left any trace whatever of their passage through North America.

Regarded from the point of view of an armchair anthropologist, it seems to us that an ideal solution to this vexing problem would be to say that the Caribs may represent the Melanesians

in South America in much the same way that the Arawaks may have been derived from some of the Polynesians. So, if you are looking for trouble, we suggest that you try to work out a possible connection between the Caribs and the Melanesians, while we tackle the Arawak-Polynesian problem—unless you are willing to go so far as to say that this explanation answers so many questions it should not be necessary to prove it. Why not put the shoe on the other foot, and wait for Phuddy Duddy to disprove it?



SIXTH MIGRATION
300 B.C. to
500 A.D.

The Arawaks drive a wedge
between the North and South
American Australoids

Score at the End of the Seventh Inning

NORTH AMERICA 5

Australoid, Folsom,
Algonquin, Eskimo,
Mongoloid

SOUTH AMERICA 3

Australoid,
Melanesian,
Polynesian

*No Discoveries**No Inventions**One Mongoloid*

IT IS A great pity that a really good idea, such as the Arawak-Polynesian connection which we are proposing, should cause intense annoyance to a large number of men before they can get used to it. But now that we have started we had better go on and finish the job, with the worst still to come.

One of Dr. Phuddy Duddy's principal objections to Diffusion is that there is often lack of a clearly marked trail between two points of occurrence. Our answer to this is that the intervening space may not have been suitable for an occupation of sufficient duration to yield evidence of the use of a given trait, or the people may have been moving continuously and possibly rapidly, or the conditions along their route may not have been favorable for the preservation of evidence of their passage.

To quote a modern example, we know that as recently as 1847, Brigham Young led his Mormons from Illinois to Utah, but if we

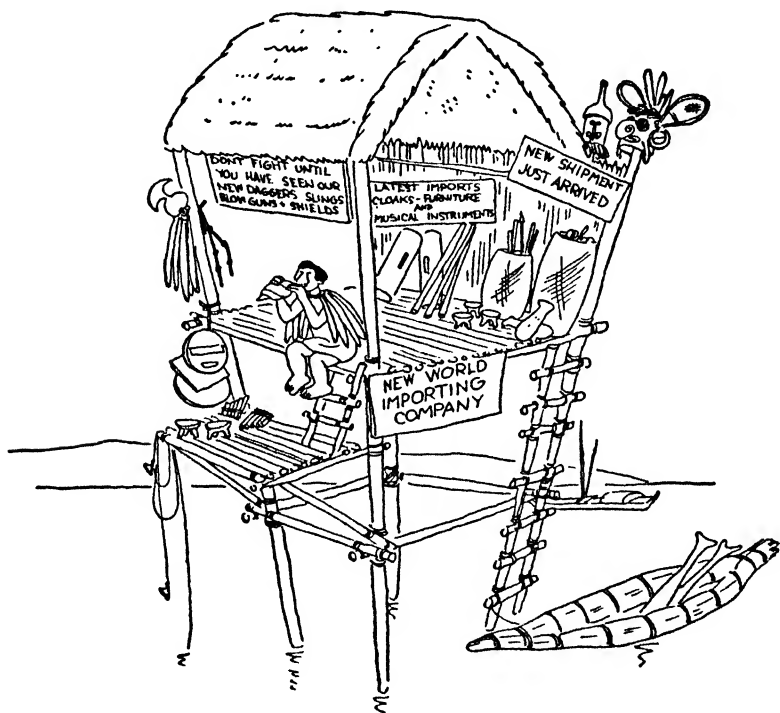
did not have a written record of the journey and were compelled to rely solely upon the material evidence left behind them, it would be impossible today, after only 100 years, to trace their trail across the prairies or even to prove that the movement had ever taken place.

We state the case thus because when it comes to spanning the gap between the Arawaks and the Polynesians there is even less hope of satisfying Dr. Phuddy Duddy. All that they left behind them, between the islands and the mainland, was the wake of their canoes. So we must turn to some other form of evidence to bolster our argument.

The late Baron Nordenskiöld devoted his career to the study of the distribution of culture traits, particularly those of South America, and he has provided us with valuable comparisons of those things that tribes in South America shared with other peoples in North America, Melanesia and Polynesia. While he was a leading advocate of the theory of duplicate independent invention, Nordenskiöld's *Comparative Ethnographical Studies* are of great value to any factual study of the evolution of culture, such as that in which we are now engaged, regardless of whether one leans to independent invention or diffusion as the principal factor in the growth of culture.

We are going to begin by emphasizing a feature of Nordenskiöld's work which has never received the attention it deserves—the fact that of 49 traits which he listed as occurring in Melanesia and Polynesia and in the New World, "No less than thirty-eight are found in Colombia and Panama, and this notwithstanding that the archaeology, and in part also, the ethnography of these regions is very little known." As a bald statement of fact this sentence conveys a good deal of significance, but its true importance will be apparent when it is realized that the equatorial counter-

current runs into and dies in the Gulf of Panama, which lies directly between Colombia and Panama. It gives one the impression of having been a sort of dead-letter office, where traits from Polynesia had been stowed away, waiting for someone to come and claim them.



Going a little farther afield, it may seem to you as it does to us that with 49 traits listed by Nordenskiöld as having been shared by people in South America with those in Melanesia and Polynesia, the mere number of such duplications is convincing evidence that there must once have been some intercourse between the islands and the mainland. Perhaps you will also agree with us

that one must have not only an exaggerated idea of the inventive ingenuity of American Indians but also a blind faith in the laws of chance—which would be more appropriate at Monte Carlo than in judging the ways of men—if all of these duplications are to be laughed off as fortuitous discoveries or as purposeful inventions—prompted by the same supposititious needs—which were independently made in Polynesia and again in South America without any contact whatever between the two areas.

And so you may be tempted to compromise and admit that maybe a few of these traits were the result of diffusion and the rest independently invented.

Before we go any further, however, we must warn you that a little agreement is a very dangerous thing. Once you begin to toy with the idea that this, that or the other thing may have been introduced into America rather than reinvented here, you have opened the door of your mind to all sorts of new ideas and heresies. When you tackle a problem of this sort you at once begin to find that one thing leads to another in a very logical sequence. If, for instance, you say, "Oh, I'm willing to admit that something as tricky as casting copper by the lost-wax process may have been introduced from India or China where the technique was the same," then the jig is up.

The only excuse, you see, for the theory of reinvention is that its addicts believe that the New World was populated *before* any of these things were known in the Old World, and since it is also demanded that there was no subsequent intercourse, it must necessarily follow that "American Indians" did *all* of their own inventing. Once you admit that any one of these things may have been introduced, you upset the whole applecart, as it is obvious that if knowledge of complicated processes, such as metallurgy and many of the weaving techniques, was brought over by a migra-

tion of people, then you would also have to admit that pottery, the loom and the whole bag of tricks could also have been the result of diffusion. It is literally a case of all or none.

So be very careful about making any admission; one slip, and you become a diffusionist. The only way to march with the Old Guard is to keep your eyes to the front, lead with your chin, hope for the best and pretend that you do not hear the rude, sometimes insulting, persons who do not agree with you.

Returning to the discussion of certain traits and their distribution within the Americas, there are a few things which stand out as having required many centuries of what might be called cultural ancestry. Among others these include such things as metallurgy, temple pyramids, hieroglyphic writing, calendar systems, the concept of zero, weaving techniques, various ways of painting and ornamenting pottery and many other traits featured in the civilizations of Mexico, Central America and the Andean region of South America. But, though it must be obvious that all of these things could only have been evolved after long ages of experiment and experience, none of them made their appearance in the New World until about the time of Christ and, what is of the utmost importance to a true understanding of native history, *very few of these things were ever known in North America—north of Mexico.*

We now suggest that you pause for a few moments and take time out to digest the full significance of what has just been said, because herein lies the crux of the problem of the origin of New World cultures. It boils down to the two demonstrable facts that:

The prototypes of culture traits in North America, north of Mexico, were almost exclusively confined to China and North-eastern Asia.

The prototypes of those culture traits which are distinctive of

Mexico, Central America and the Andean region can be traced almost exclusively to Polynesia, Melanesia, India and the Near and Middle East.

The significance of these distributions was also noticed by Nordenskiöld, who made some interesting comments which are not often quoted:

"We may first of all note the existence in the extreme south and the southern regions of South America, in the present time or formerly, of a large number of culture elements which are also found in North America, but not at all or merely sporadically, in the Amazonas, northern South America, Central America and the West Indies. Some of these occur exclusively in the south, others mainly in the southwest, while others again are typical of El Gran Chaco. The majority of them are also found in Asia, while only a few are known from Oceania.

"The reason why in the farthest southern and southwestern parts of South America there occur so many culture elements which are also found in North America north of Mexico, but not in intermediate regions, must be sought in extensive migrations or independent inventions, but not in culture loans from tribe to tribe.

"The occurrence of so great a number of culture elements both in southern and southwestern South America and in North America north of Mexico cannot either be explained as being nothing beyond adjustments to similar environments, for the similarities are too abundant and too complex. It is moreover to be noted that many cultural elements of this specific distribution are independent of natural environment, such as the sucking tube, back scratcher, stone-boiling, ladder-like baby-carrier, etc."

Now here are some rather knotty problems for Dr. Phuddy Duddy to solve.

In the first paragraph, Nordenskiöld tells us of a large number of culture elements which are common to tribes in North America, southern South America and Asia, but which are rare or absent in northern South America, Central America, Mexico, Melanesia and Polynesia.

This raises the question of how the theory of Psychic Unity can be used to explain why one group of tribes in South America possessed traits which smacked of Asia but not of Oceania, while another group in South America shared things with Oceania but not with Asia.

In the second paragraph, Nordenskiöld, for the first time, raises the dread specter of *independent inventions within the Americas* to account for widely separated analogies, and here is a very dangerous snowball to start rolling. If distant resemblances are to be thus explained, why not those adjacent to one another? After all, the nearer together and the more similar the environment, the greater the likelihood of duplicate discoveries and inventions; and if not, why not?

Then, in the third paragraph, Nordenskiöld says that "the similarities are too abundant and too complex" to be laughed off as merely adjustments to similar environments. This seems to us to be nothing less than out-and-out heresy since, in orthodox circles, neither the quantity nor the quality of duplications should be allowed to influence the decision that certain traits have been independently discovered or invented. Such unconventionality might easily lead to some very embarrassing situations.

Also in the third paragraph, there is Nordenskiöld's extraordinary statement that similarities between culture elements in North America and those in southern South America are "independent of natural environment." To some of us it would seem that when independent invention is independent of natural en-

vironment someone's mind is really on the loose, and it will be interesting to see how Dr. Phuddy Duddy will handle the situation.

While he gathers himself together, we will solve the problem in our own way by saying that the tribes down in South America which shared some of their culture with some tribes in North America were no more and no less than the southern representatives of the Australoid migration which, as we have told you, settled in southern North America and northern South America. Their ancestors were the people who lived in the Lagoa Santa caves in Brazil and the Paltacalo caves in Ecuador; and the old lady who fell into the ravine at Punin, and dragged an Andean horse, a camel and a mastodon with her was undoubtedly an ancestress. There are also some long-headed skulls from the eastern coast of Argentina, found by Ameghino, which may belong to the same family.

These were the early people who were responsible for the shell heaps along the eastern coast from Brazil down to Tierra del Fuego, and who had South America pretty much to themselves until the Caribs and the Arawaks came in from the Pacific, and, by occupying northern South America, Central America, the Antilles and southern Mexico, drove a great wedge between the Australoids of South America and their compatriots in North America. To further emphasize this point it should be noted that few, if any, of the culture traits of this early Australoid occupation were characteristic of the civilizations of Mexico, Central America or the Andean region.

How to Stage a Migration

BY READING—OUT OF BOOKS

THE LANDING on the west coasts of Middle and South America of Melanesians who later turned out to be Caribs, and of Polynesians who later turned out to be Arawaks, is such an obvious and logical explanation for the presence of Oceanian culture traits in these regions that you may be making the mistake of thinking that this explanation solves all of our problems. It doesn't. There are some things such as polished red pottery, metallurgy and fancy textile techniques which were characteristic of some of the advanced cultures from Mexico down to Peru and which were not known in Polynesia.

For these we must go even farther west, to the sources of the Polynesians themselves—to Indonesia, India and the Near and Middle East. Fortunately the trail is clear and it is simply a case of following your nose, if you happen to have one that is built on the generous lines of the Armenoid model.

When Alexander's fleet left Susa in 323 B.C. the ships were manned by men from the Near East. They wore the costumes with which we are all familiar—short tunics, a fez or else a Grecian crested helmet, quilted armor—and for weapons they used slings, short stabbing clubs, and broad-bladed spears.

Inside their broad, flattened skulls they carried the knowledge of their day, and what with their different nationalities—Greek,

Armenian, Syrian, Persian, Cretan, Egyptian; their campaigns in Greece, Asia Minor, Palestine, Egypt, Mesopotamia, Afghanistan and India, and particularly their intermingling in Alexander's many and various Alexandrias, their knowledge, collectively, was comprehensive. And, of equal or even greater importance, they had picked up a large following of natives from India who could be expected to know their stuff.



So from the center of the splash in western Asia, it is simply a case of picking up the intermediate ripples until the last little wavelet laps the beach in the Gulf of Panama.

You will have no trouble picking out your own ripples, if you are accustomed to cruising in the South Seas or enjoy hobnobbing with the cannibals and head shrinkers of the Amazon jungles. But there are other ways to go about it, and here are some suggestions as to how to tackle a job of this kind in your armchair beside the fire in your library.

First, you ask yourself if there is any evidence of the means by which culture could have been diffused from Polynesia to South America, and you look over your shelves and take down anything that has a bearing on the subject. If you happen to have Norden-skiöld's *Ethnographical Studies* you are off to a good start, as these are a gold mine of information even if they were written to disprove what you intend to prove. Here are plenty of facts and these are what we need; everyone is entitled to his own opinions of what such facts may mean.

You begin by looking for some sort of a craft that would be capable of making the voyage across the Pacific, and you can at once rule out rafts and coracles as being impractical. So you look up "canoes" in any good index—such as in Dixon's *Building of Cultures*, Wissler's *American Indian*, or Linton's *Study of Man*—and you will probably find that they have listed bark canoes, dug-outs and plank canoes, and again you can simplify your problem by eliminating bark canoes as too flimsy for your purpose. An ordinary dugout, made by hollowing out a large log by the use of fire and an adz, is good and sturdy but would have too low a freeboard for a long ocean voyage unless the sides could be raised.

Plank canoes are more what you are looking for. These were made of three good-sized planks, a bottom board pointed at both ends, two sideboards bent around the bottom, and all joints sewed together with sinew, rawhide or rope, and the seams caulked with fibers embedded in tar or pitch. This was one of the types of canoe used on the Santa Barbara coast, and was sufficiently seaworthy for the Indians to reach the islands 25 miles offshore, across a channel that is usually rather rough. The same kind of canoe has been reported from the Araucanian tribes of southern Chile and also from Korea and the Ainus of Japan, but, although plank canoes may have had some advantages over dugouts, nei-

ther of them appears to be large or staunch enough to incite one to head out into the great blue yonder without having any idea of what lies beyond the horizon.

We seem to be on the right track, however, and are gradually rising in the scale; and the next step is an important one. In Polynesia, where boatbuilding has always been a fine art, even from early times, someone conceived the brilliant idea of making a dugout and then raising the sides by adding planks. The joints were covered with battens, sewed and caulked, and the bow and stern were further strengthened with solid pieces of wood, usually carved with elaborate patterns. This, of course, was a great improvement as the dugout base gave greater stability than a plank bottom, and the plank sides raised the freeboard, which had been the chief weakness of the dugout.

Another contraption adding immeasurably to the seaworthiness of a canoe was the outrigger. This was a device consisting of two booms lashed horizontally across the sides, amidship, and projecting outward to a cigar-shaped float parallel to the canoe. In some cases, a double outrigger was used with a float on either side, but the single type appears to have been more popular and was known throughout the southwestern Pacific and westward into the Indian Ocean. It was undoubtedly this combination of dugout, plank sides and outrigger that made it possible for Melanesians first, and later Polynesians, to colonize the islands of the Pacific. There is no record of the outrigger in the New World, however, and our search is not yet ended.

You will find just what you are looking for in the double canoe, in which another full-sized canoe took the place of the outrigger, and this brings us around again to the great plank-sewn double canoes mentioned by Captain Cook in Chapter XXIII, where we were dealing with the colonization of Poly-

nesia. Now we are primarily concerned with the voyages from outer Polynesia to the Americas, and it will be necessary to run down references to show that the double canoe was known in the New World if we are going to prove our case.

Nordenskiöld starts you off with the double canoe listed for Peru, Central America, Mexico, Melanesia and Polynesia. But, although this is encouraging, it may occur to you that if the double canoe was known in America and Oceania it may have had even wider distribution, and so you look up Pitt-Rivers' *Evolution of Culture*, let us say, and find that he also lists this type of craft as having been used in Melanesia and Polynesia, but adds Ceylon, Burma, the Malabar Coast of southwestern India, and the Ganges as far up as Patna. Of even greater importance, however, Pitt-Rivers also includes the Waraus of Guiana, in South America, and the Ahts of the northwest coast of North America.

But don't permit yourself to be carried away with a little success. This is a good time to pause for a moment or two while you gather your facts together and make up your mind what they mean. Of the various items that you have collected, the Santa Barbara plank canoe is the only prehistoric instance; the others are all based on historical records of modern peoples. I can guarantee the Santa Barbara canoe as prehistoric because we have actually excavated the decayed remains of a craft of this kind near Santa Barbara. But the modern records also have their value since they imply ancient prototypes, and your next step, therefore, is to dig back into the archaeological accounts and see what you can find.

Fortunately, we have a great store of extremely valuable information in the pottery of the so-called Mochica period, which was one of the earliest cultures of Peru. It is very fine pottery which under ordinary circumstances would have required 2000 or 3000

years of prior evolution to have reached such excellence, yet none of the earlier evolutionary stages have been found in Peru, even though it is said to go back only to about the time of Christ. This is a statement which has a familiar ring. Aside from the extraordinary realism of the heads and faces that were modeled by the ancient artists, one of the chief values of this pottery lies in the fact that these early Mochica people depicted the daily events of their lives on their pots, and in consequence we know what they looked like, what they wore, what they did and what they did it with.

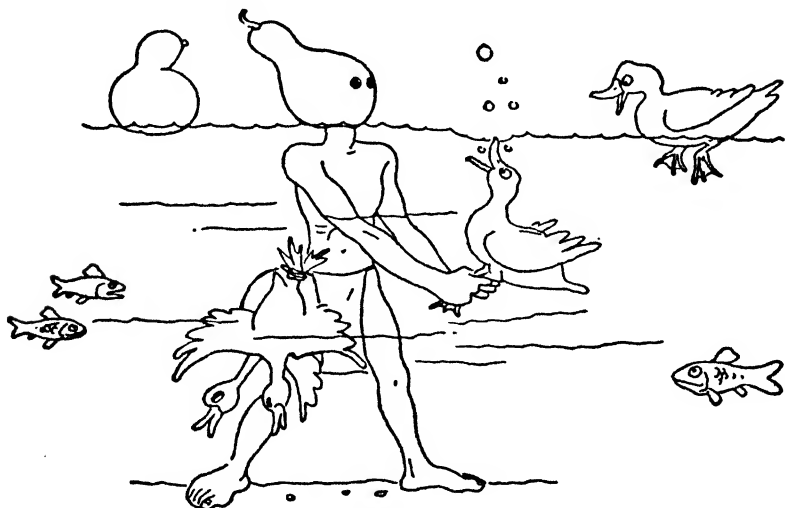
Your search will be rewarded on a Mochica pot, illustrated in Baessler's *Ancient Peruvian Art*. It shows what appears to be a double canoe, made of planks lashed together, with carved heads at bow and stern and a square superstructure under a canopy. To some it will recall Cleopatra on the Nile; to others it may suggest the Polynesian replicas; to us it just means diffusion.

Now, how about a sail? You can begin in Peru where the Spaniards found them in use on boats large enough to carry 50 men. Canoes, equipped with sails, and capable of carrying 50 men, strike another familiar chord, and as there is no reason to suppose that the Spaniard who saw it was dreaming—or trying his hand at independent invention—you can chalk it up. Norden-skiöld is even more encouraging and lets you have both square and triangular sails in Peru and Central America. Pitt-Rivers, among others, will supply you with the triangular or lateen sail all the way through the South Pacific, the Indian Ocean and up to the Mediterranean.

The only other thing about a boat that you need is something with which to steer or to propel the craft for short distances if becalmed. You will not have to look farther than Nordenskiöld, who gives a paddle with a so-called crotched handle—a sort of

cap for the top of the paddle, carved to fit the hand—known from Colombia, Panama, Mexico, the Amazon and our northwest coast to Melanesia and Polynesia.

Next you ask yourself what the people could have carried as food, and Nordenskiöld tells you that there are three plants which are found to be the same in America as well as in Polynesia: coconut palms in Colombia and Panama, sweet potatoes in Peru, and a calabash known as *Lagenaria vulgaris* over most of South America. You already know that some men think that sweet potatoes were carried *from* South America to Polynesia, and as to coconuts and calabashes, it has not yet been claimed that they



were independently invented. The calabash is a large hard-shelled gourd which was hollowed out and used to hold lime or liquids, and, although we have never tried to eat one, it is probably as palatable, judging by our own tastes, as summer squash.

While on the subject of calabashes, there is a useful quotation

from Nordenskiöld to back up our tale in an earlier chapter:

"A parallel between Chinese and Indian [var. *Americanus*] culture is duck-hunting with a calabash. In a place where duck are usually found, calabashes are thrown on the water and left to float about until the duck are used to them. When the duck are no longer afraid of the calabashes, the Indians cover their heads with a sort of mask made from calabash shell, and stalk the duck with only the mask showing above the water. The duck, which have lost their timidity of the empty calabashes, do not fear the hunter concealed in the calabash mask, and allow themselves to be caught with the bare hands.

"In America this strange method of hunting is known from Mojos, Maracaibo, Haiti, Chiriqui, and Mexico. Du Halde reports it from China."

You can also add to your list the same kind of fishhook in America and Polynesia, and the same method of stupefying fish by putting poison in their pools. We do not recommend this for modern practice since the game wardens might regard it as taking a rather unfair advantage, but for downright meanness we know of nothing worse than tying a string around a cormorant's neck, letting him catch a fish, and then taking it away from him, as they did in China and Peru—another little item from a Mochica pot. One other laborsaving device was employed in the West Indies and also on the coasts of India, where they used sucking fish on the end of a string to catch turtles, all according to Nordenskiöld.

Speaking of duck hunting—which naturally suggests crouching in a blind, half frozen in a driving rain—you would find the natives in Colombia, Panama and Melanesia putting on the same kind of rain cloak made of leaves, or dressing themselves in the same kind of bark cloth.

Incidentally, if you should decide to beat up a few yards of bark cloth and whip up something exclusive in sportswear, here's how. I would suggest, however, that you do not wait until all your other clothes are worn out—or else keep a barrel handy—for the fortuitous discovery that bark can be made into cloth and the purposeful invention of the apparatus with which it is made is not as simple as Dr. Duddy would have you believe.

It could not possibly be made out of most of the trees with which you are familiar. Various species of fig and the paper mulberry are the only suitable trees, as they yield layers of fiber between the outer bark and the actual wood of the tree trunk which can be made into bark cloth.



To start your discovery you scrape off the outer bark with a shell, or you can use a nutmeg grater if you have succeeded in inventing one. Then you peel off strips of the inner fiber a few inches wide and as long as needed. Soak the strips in water (the

recipe says until they are thoroughly soaked, but whether this requires an hour or a month you will have to discover for yourself). The strips are then spread out on a log (the recipe says it should be hollow—why, we don't know) and more strips laid over the bottom layer and pounded with a mallet until the fibers are impacted.

It might be a good idea for you to invent the mallet before you start the operation, otherwise the fibers might dry out or become waterlogged while you are making up your mind as to whether the mallet should be square or round, long or short, plain or grooved, et cetera. Do not spend too much time, however, thinking about the size or heft of your mallet, since, if your psyche is a unit off a production line, you will inevitably end up with a grooved mallet that looks like a glorified butter paddle, exactly like those used in South America and Polynesia.

Then you can ask yourself what may have happened when land was reached and the men went ashore. If they were as smart as we think they were, they would undoubtedly have made ready for a scrap.

Some would don their helmets—and here we pause to say that these must be seen to be believed. They were tight-fitting caps of wickerwork, surmounted by a curved crest, the whole covered with feathers and exactly the same shape as the Greek helmet of the days of Alexander. The resemblance is so perfect that the question has been raised as to whether they were not copies from late European models, but this idea was scotched by Captain Cook who found them in fashion in Hawaii when this first European contact with Polynesia was made. The same type of helmet has been reported from Melanesia and you will also find illustrations of crested helmets on Mochica pottery in Peru.

Some wore fezzes, as in the Near East, Polynesia and Peru.

Others wore turbans wound around their heads, and it would be difficult to tell whether they came from India or Mexico. You need only to glance at some of the turbaned figurines from Arbolillo, in the valley of Mexico, to realize how deeply such evidence would affect us.



Some men wore bark corsets. Others protected their tummies with quilted or rod armor. Some used slings, as in South America and Polynesia; some had blowguns, as in Colombia, Panama, Mexico, Peru and Oceania; all probably used the short stabbing clubs so suggestive of Greek models, which were used in Polynesia and also profusely illustrated in Mexican codices and on old Peruvian pottery.

Both round and square shields were carried, and some men

may have tried to raise themselves above the din of battle by climbing on stilts—if they were fighting in Central America or Oceania. Those who were fussy about their hands used knuckle-dusters, as in Peru, Central America and Polynesia. A nasty piece of work, in the form of a club, was the stone macehead shaped like a five-pointed star—presumably to prevent skidding off thick skulls—from Peru, Central America and Melanesia. There was also the wicked-looking wooden sword of Polynesia which had cutting edges of inlaid shark's teeth; in Mexico they substituted obsidian, more in the style of the old, Egyptian flint-edged swords.

Some of the long spears from South America are useful-looking tools, with broad blades of bamboo as sharp as steel, and it is interesting to read what Linton says of those in Polynesia:

"There can be little doubt that spears of this type are wooden copies of metal forms, but it is impossible to tell how or when the Polynesians became acquainted with such weapons."

Here is another chance for us to help.

Bamboo was also used for daggers in Colombia, Panama and Oceania; perhaps men were called to battle with the conch trumpets of Colombia, Panama, Peru, Mexico and Oceania; and they may have flashed back the news of how things were going on the same kind of signal gong in Colombia, Panama and Melanesia.

Then, when the shouting and tumult had died down, by listening carefully one might have heard a simple tune played on Panpipes in either Melanesia, Colombia, Panama, or Peru. In case you do not know them by name, Panpipes are ingenious little musical instruments which came originally from Greece. In the *Encyclopaedia Britannica*, the following description is given:

SYRINX, the Greek name for the pan-pipes. The pipes composing it were stopped at one end, so that the sound waves had to travel twice the length of the pipe, giving out a note nearly an octave lower than that produced by an open pipe of equal length. It consisted of a varying number of reeds, having their open ends in a horizontal line and their stopped ends, formed by the knots in the reed, gradually decreasing in length from left to right. Each pipe gave out one note, but by over-blowing, i. e. increased pressure of breath and tension of lips, harmonics



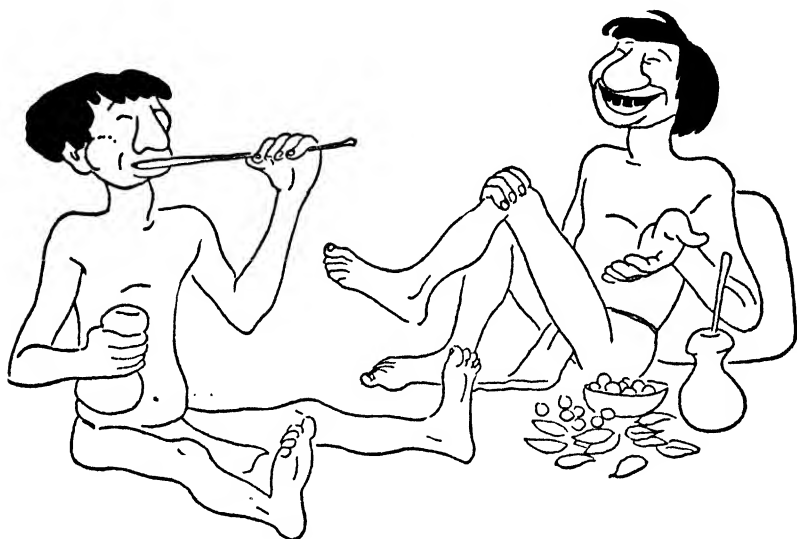
could be obtained. The syrinx or pan-pipes owes its double name to ancient Greek tradition, ascribing its invention to Pan in connection with a well-known legend of the Arcadian water-nymph Syrinx.

It is interesting, and some may regard it as significant, that the pipes in Melanesia and those in South America have been shown by Hornbostel to have tonal identity and the same pitch.

Some of the women might have settled down on the same wooden stools and started weaving on the same Arawak looms or on the same lattice baskets, whether they were in Colombia, Panama or Melanesia. Other women would take care of the wounded by putting wooden pillows under their heads, cooling

them by waving plaited fans, boiling water in bamboo sections, or maybe sending out a call for a Medicine Man to come and do a job of bloodletting with the same venesection bow used in Colombia, Panama and Melanesia. If skulls needed a little attention, the treatment might call for trepanning if the patient happened to be in Peru, Central America or Oceania.

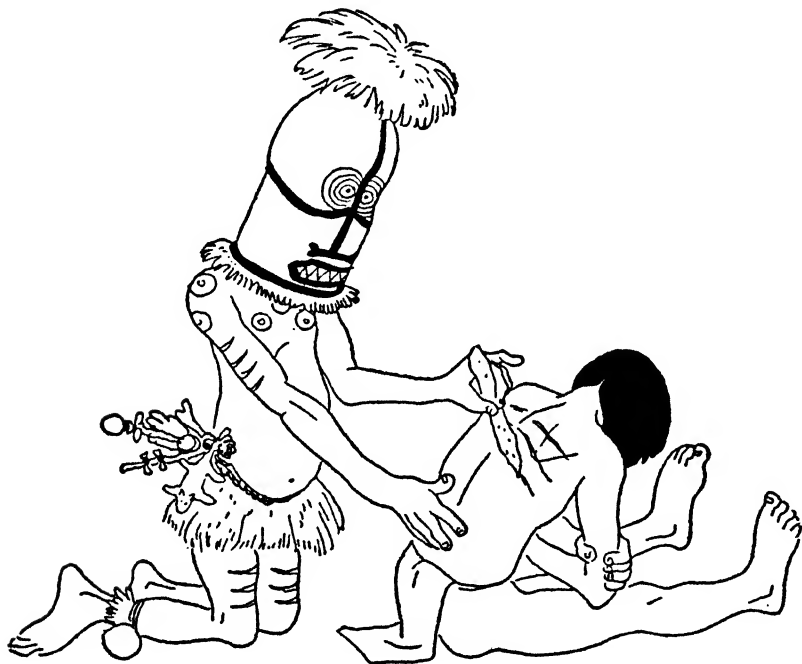
Those men who had survived without injury might decide to



relax, and taking their calabashes filled with lime they would first remove the swizzle stick which also served as a stopper, lick off some lime, and chew a plant—tobacco, if in Mexico; coca, if in South America; or betel, if in Oceania. Then, while they were reclining, a fellow might draw near in a grotesque mask and offer to do a quick job of tattooing, or piercing a septum for a nose plug or the lobe of an ear for an earplug, or punch a hole in a cheek for a lip stud, or drill a few teeth for fancy inlays—the job

would have been the same in either South America or Oceania.

Chasing down analogies is fun, but we don't want to run them into the ground; it is even more fun to dig them up. We have been giving you a fairly stiff dose of Dr. Duddy's prescription—



repetition—and you may be growing weary of hearing that the ways and means of life were so much the same in Colombia, Panama, Mexico, Peru and Oceania.

You may also be thinking that what we have been saying sounds good enough for an episode, like a battle and its aftermath, but what did they do afterward? Did they settle down and go to work?

They did.

How to Found a Civilization as a Bearded White God in Peru

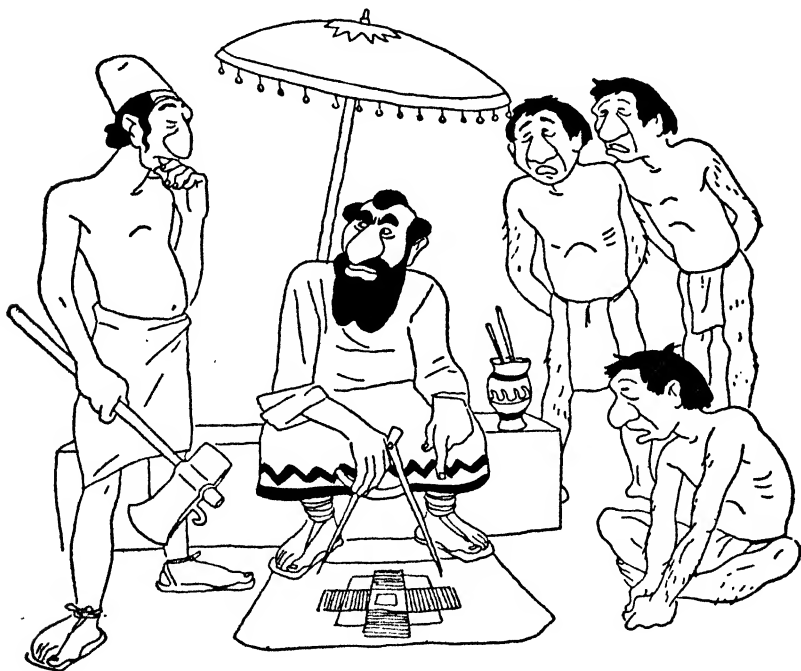
TO DECIDE what was done by various groups after they had landed on our western coasts it is necessary to bear several points in mind.



You should begin by looking over the geography of this section of the Americas rather carefully, noting particularly that the

Gulf of Panama forms the top of the loop of a great question mark of which the Andean coasts of Ecuador and Peru constitute the stem. It is also worth noting that the south and west shores of the isthmus of Middle America are broken and irregular and consequently not conducive to the free movement of people who depended upon their feet to go places.

The next point to bear in mind is that in spite of all the vocalizing about the Maya their culture was very localized and their



influence did not extend for much over 100 miles east or west from the center of Guatemala.

A third point to remember is that the same thing is true of all the native American cultures from the valley of Mexico down to

Chile. They all shared certain features, such as pottery, pyramids and houses, but once the knowledge was originally acquired no two of them did the same thing in the same way, and each concentrated its energies on a different kind of cultural activity.

Let us start with those things that were shared. Some of them built houses in America in the same way they had built them in Oceania—palm-thatched, with a roof-apex cap of clay. Some, in Central America, raised their houses on piles as their ancestors had done in Oceania and southern Asia. Some protected themselves with wooden palisades of the same kind as those in Melanesia and Polynesia. But all of these were for the proletariat—the Great White Gods were proceeding to found some civilizations and had to be housed accordingly.

So they directed the construction of buildings. As you may think our descriptions exaggerated, we quote from Dr. William H. Holmes, former Chief of the Bureau of American Ethnology, Smithsonian Institution:

“Even more diversified and remarkable are the correspondences existing between the architectural and sculptural remains in Middle America and those of Southeastern Asia. In both regions the chief structures of the cities are pyramids ascended by four steep stairways of stone, bordered by serpent balustrades and surmounted by temples which employ the offset arch and have sanctuaries, symbolic altar sculptures, and inscriptions. The snouted masks of the Maya sculptures have an insinuating way of suggesting the trunk of the elephant and the upturned jaw of the mythical serpent is equally reminiscent of the treatment of the cobra jaw in the Far East. Temple walls are embellished with a profusion of carved and modeled ornaments and surmounted by roof crests and cupolas of elaborate and even pagoda-like design. There are present also in Yucatan, as in Cambodia, as supports

for the great stone tables, balustrades, and lintels, dwarfish Atlantean sculptured figures, and it is especially noteworthy that some of these figures on this side represent whiskered men. The true



significance of all this and more has been sought again and again without satisfactory result."

That these temples and their accessories were designed primarily for religious purposes there can be no doubt. There is sometimes a suggestion, however, that some of the big shots may have planned their own private sanctuaries on top of a pyramid,

where libations to the gods were poured to the accompaniment of the cabalistic words,

Juyuh!

Chan-chan!

With a large number of bearded white Levantines hustling around looking for the best places to establish their civilizations and to set themselves up as gods, it will simplify things for you if we select one or two and see what happened.

Beginning in northern Peru, it seems that the bearded white gods either arrived separately or else they had no sooner landed than they parted company and set up three distinct establishments, so emphasizing the differences in tastes and accomplishments between the individuals who were arriving from various parts of India and the Near and Middle East.

In northern Peru, in the neighborhood of modern Trujillo, the course of developments which has come to be known as the Mochica culture looks as if it must have been founded by our old friend Naymlap. You will remember that this bearded white god was reported by Father Cabello de Balboa to have come down from the north with a great fleet of canoes and to have landed on the coast of Lambayeque, a few miles north of Trujillo. The account described him as having come well-heeled with a large retinue of artists and artisans who were all prepared to set up shop and launch a civilization the moment they arrived. This apparently is just what happened, as, judging by the pottery, the Mochica culture came into full flower overnight, without any primitive or introductory stages.

From a standing start, the people in this section of Peru suddenly began making pottery jars—remarkably well made—the most characteristic being those which were modeled as the heads of men and women—often fine, jovial faces with no suggestion

of Mongoloid features. These jars show helmets with what appear to be metal crests, and appendages at the back that look like snoods, turbans which could have come straight from an Indus milliner, skullcaps and bonnets with tabs to tie under the chin, embroidered shawls with the ends knotted over the breast, and tattooing, earplugs and other forms of self-mutilation, including the quaint custom of removing the entire upper lip. The details of their features are so clearly reproduced that a doctor in London recently went so far as to publish a paper on the pathological symptoms which he had been able to detect from these ceramic masterpieces.

They also made a large number of pots and platters on which they depicted many of the episodes of their daily and domestic lives. We know what the well-dressed Mochica fisherman wore, how he sat in solitary state on a raft while he was towed out to the fishing grounds by four servitors who sometimes are shown wearing water wings; or perhaps he was being ferried out to inspect his seal nurseries, to see that the pools and pavilions, illustrated and described by Means, were being kept in good order.

There are also many hunting scenes, particularly of deer, which were driven into nets and killed with spears and clubs.

Their favorite subject, however, was their warriors' making life miserable for the savages who were usually shown as having been naked except for ropes tied around their necks. There is no mistaking the warriors who always wore crested helmets, tunics that made them look like the King of Hearts, or else armor which protected their bodies from their necks to their knees and often looked as though it were made from slats or rods. They wore pads to protect their knees, and what appear to have been stockings or maybe knee-length boots to protect themselves from cactus. They were armed with maces with star-shaped heads,

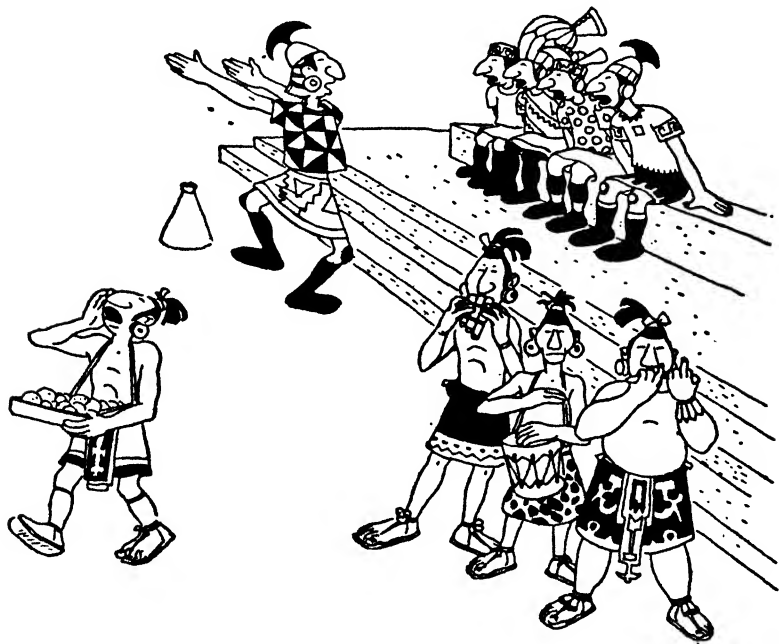
axes, spears, spear throwers and stabbing clubs, and most of them resembled the White Knight from the amount of hardware hanging on their belts.



After a good knockdown, drag-out fight and with the word that the foe had been defeated, a new series of noises and voices could be heard. Partly drowned by the cheering section and the band, with ocarinas, pipes and drums, a shrill, small voice might be heard calling, "Cigars and Cigarettes" or "Cokes and Chew-

ing Gum”—all of which, as you know, were first discovered and used by our Indians, long before the days of Columbus.

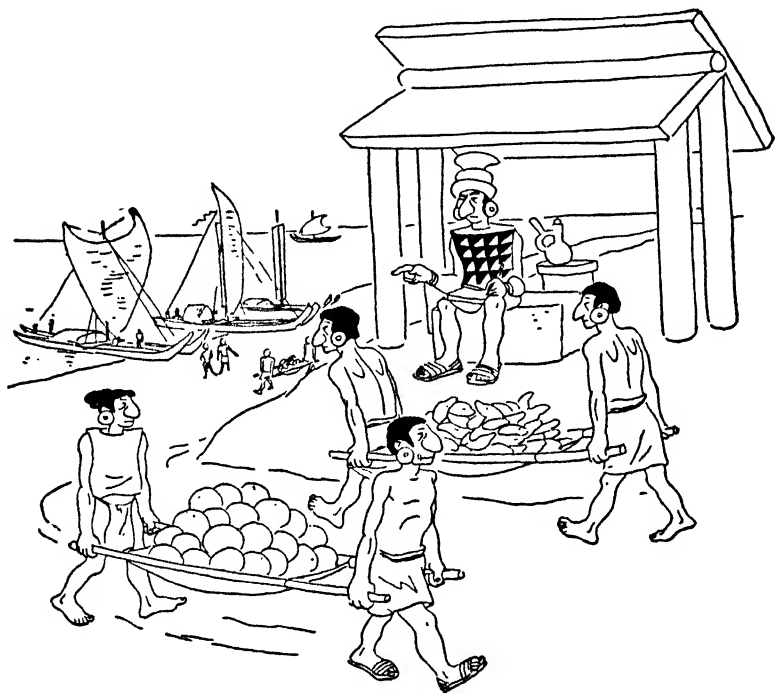
The white gods were carried around in litters, with sometimes two but more often four men as bearers. There were also many roadside pavilions at frequent intervals to provide shelter and a



little pick-me-up in case the bearers petered out. It may have been under just such a pavilion that a steward sat as he checked the count of the incoming coconuts and the outgoing sweet potatoes of the shuttle service to and from the islands of Polynesia.

The activities of the Mochica ladies are also clearly illustrated on an early vase from Chan Chan. This piece of pottery shows eight ladies in what is literally a sewing circle, drawn around the

flaring rim of the pot. They are all industriously weaving on belt looms. We are afraid that you might not believe us if we attempted to describe the scene, so we leave it to Philip Ainsworth Means to tell you what was happening:



“ . . . we are shown the design painted around the flaring rim of a large, deep vessel. An Early Chimú [Mochica] cloth-factory is here displayed. The personage in charge of the work appears on the right, seated under a rustic canopy and elaborately clad. With him are three minor officials who appear to be receiving his instructions, together with a supply of food or water in a bowl. Proceeding clockwise, we next come to five humble-looking per-

sons each of whom is working at a loom. They, too, are sheltered by a rustic roof. Each of them is provided with a bit of cloth from which to copy, and with a jug, probably containing liquid refreshments of some kind. Then comes another official who seems to be in charge of the kitchen of the establishment, with a minor personage to help. Venison is cooking on the hearth, and in dishes in the background we catch glimpses of fish and vegetable food. Evidently the workers in this particular weaveshop fared well. Lastly there come three more weavers similar to the first five."

If these details had been handed down to us in the form of a codex they would long since have been dismissed as obvious fakes, since it would manifestly be absurd to think of a South American Australoid suddenly graduating from a G string (or less) to a ready-made and elaborate civilization with no excuse other than that he had decided to do a great deal of duplicate independent inventing. Fortunately for the record, the Mochica artists have left us unimpeachable evidence in the form of the pottery which they molded and painted.

If you have any doubts about the things we have been telling you, you need only go to a good museum and see for yourself.

While all of this was going on in the Mochica section of northern Peru, one or more of Naymlap's retainers—probably Llapchillulli, who was described as having made Naymlap's shirts and feather cloaks—slipped down the coast to a place known as Nazca, where he wasted no time in setting up another center of civilization along somewhat different lines.

Whereas the Mochica school was making a name for itself in ceramics, the Nazca group chose textiles as the medium by which to give vent to their artistic steam, and from all appearances their pressure was fairly high.

Here again everything happened at once without any prior

warning or build-up. As you might suspect that we are exaggerating, we turn again to Means to tell of the various techniques which have been identified in these ancient Andean textiles. For further information we cannot do more than suggest that you read his detailed descriptions in his *Ancient Civilizations of the Andes*.

I. TAPESTRY.

- A. Plain, or monochrome.
- B. Multi-colored, but with interlocking wefts.
- C. Multi-colored, but with vertical slits or *jours* between the color areas in the weft.
- D. Brocaded.
- E. Embroidered.

II. PLAIN WEBS, OR ORDINARY WEAVING.

- A. Undecorated.
- B. Striped in the warp.
- C. Striped in the weft.
- D. Check-patterns and ginghams.
- E. Embroidered.
- F. Brocaded.
- G. Painted, or perhaps printed.

III. DOUBLE-FACED CLOTHS.

IV. FEATHER-WORK.

- V. CHAQUIRA. [fine cloth ornamented with metal bells, discs, sequins, etc.]

VI. GAUZE AND VOILE.

- A. Undecorated.
- B. With tapestry borders.
- C. Brocaded.
- D. Embroidered.
- E. Tie-dyed.

VII. NETWORK, OR RETICULATED MESHES.

A. Plain.

B. Figured.

VIII. MISCELLANEOUS AND COMBINED TECHNIQUES.

A. Sundry combinations of techniques.

B. Braided, crocheted, and knitted fabrics.

C. Tassels and fringes.

D. Rare or indeterminate weaves.

From this list you will realize that Llapchillulli knew his stuff when it came to establishing textile industries. He did not do so



well, however, in choosing his fashion designer. The head of this department was evidently a victim of the heebie jeebies, since he converted everything that he saw into some sort of a demon. In

consequence, the Nazca textiles and Nazca pottery are demonstrated with cat demons, bird demons, centipedes and dragons. We do not recommend them for nursery decorations.

The highest, whitest and handsomest of the Peruvian bearded gods was Uiracocha, who, at a guess, may have hailed originally from Asia Minor, where he saw the polygonal type of masonry at Troy, which was unearthed many years later by Schliemann. He evidently took the route past Easter Island where he paused long enough to build a wall or two, thence to Peru and so inland and upward where he established himself and went in for masonry construction in a big way. If you have ever seen the ruins at Tiahuanaco, Ollantaytambo and Sacsahuaman you will understand more clearly what we mean when we say *big*.

As the real estate in the Tiahuanaco section of the Andes was subject to violent ups and downs, Uiracocha taught his farmers how to build the terraced fields which he had seen in southern Asia and Indonesia.

And now a word or two about the mathematics of the people of Peru and their neighbors to the east in Brazil. We are including both groups because, if their systems of numeration were the results of independent invention, this must have been one of the times when Psyche was more interested in Cupid than in teaching arithmetic.

It has been said that there is no language which does not show some knowledge of numbers, although, in some cases, it appears to have been extremely limited. The Botocudos, for example, who form one of the Ges-Tapuyan tribes in the interior of Brazil, can count up to one, but two may mean either a pair or many. Three is a pair plus one, and four is two pairs. They do not seem yet to have learned that three of a kind can beat two pairs, which may be one of the reasons they have stayed poor. (Dixon said

they wear no clothes and live on what they can find in the jungle, including each other.) Strangely enough, there are several tribes of modern Australians who also are stumped when they reach two, but this, of course, would only be of interest to a diffusionist.

From this you can see that counting does not come naturally to all men and it is rather interesting to speculate on how it began. Some men believe that numbers may have begun with a day count, probably in conjunction with a lunar count, in those regions where agriculture was known, primarily as a guide to seed time and harvest. Others think that knowledge of numbers may have started among nomadic herders through constantly counting their sheep, goats, et cetera.

However, whenever and wherever it started, some people began by counting only on their fingers—hence the decimal system—while others counted both their fingers and toes, and wound up with the so-called vigesimal system, based on 20 as a unit. Herein lies one of the basic differences between the numeration systems of the Maya and the Inca. The Maya used the vigesimal, the Inca used the decimal system, and this difference was further emphasized by the methods each group employed in recording numbers. As we have already told you, the Maya used hieroglyphs to record their numerical counts, and it is quite probable, as Thompson says, that all of their glyphs were connected, in one way or another, with their calendar.

On the other hand, the Andean peoples, best known as the Inca, used the decimal system and did their counting on a knotted cord, known as a quipu. In its simplest form, a quipu is the knot you tie in your handkerchief as a reminder when your wife tells you not to come home without the fish, but in its advanced stage, as amongst the Inca, it appears to have been based

on the principle of an abacus—and an abacus, as you may remember, is the little gadget your children play with in the nursery and which consists of rows of colored wooden beads, strung on wires, but which, in the hands of an expert, has been shown to be the equal of a modern calculating machine.

The quipu, as used in Peru, consisted of a heavy cord, in which no knots were tied. It was anywhere from one to thirty or more feet in length. Along this main cord, thinner strings were tied at intervals, and it was in these suspended strings that knots were tied—representing units, tens, hundreds, thousands, et cetera. This, however, was merely the basic idea, and many refinements were introduced. The distance at which the knots were placed from the main cord appears to have had some significance. Double knots were made to represent 100; triple knots indicated 1000; two single knots, side by side, represented 20; two doubles equaled 200. In addition to the knots themselves, their types, and their spacing, the suspended strings were sometimes colored to indicate what kind of thing was being counted—green for corn, yellow for gold, white for silver, red for soldiers, further broken down into detail with one cord for slingers, one for spearmen, et cetera—all according to Tylor in his *Early History of Mankind*.

The fundamental idea of knotted cords was fairly uniform throughout the Inca empire, but, as elaborations were added, the system became so complicated that official "Keepers of the Quipu" were established in each district and it was their sole duty to keep their own records and interpret those from other districts. In this way they kept track of the census, taxes and crops; and some men go so far as to say that laws, ordinances and historical events were so recorded, at least to the point that each official knew the meaning of his own knots.

Having reached this point it is hardly necessary to add that the system of counting by means of knot records has also been reported from the southwestern Pacific and Polynesia; in fact, the system was still being used in Hawaii as late as the middle of the last century according to the following quotation from Tylor: * "quipus are found in the Eastern Archipelago and in Polynesia proper, and they were in use in Hawaii forty years ago, in a form seemingly not inferior to the most elaborate Peruvian examples. 'The tax-gatherers, though they can neither read nor write, keep very exact accounts of all the articles, of all kinds, collected from the inhabitants throughout the island. This is done principally by one man, and the register is nothing more than a line of cordage from four to five hundred fathoms in length. Distinct portions of this are allotted to the various districts, which are known from one another by knots, loops and tufts, of different shapes, sizes, and colors. Each taxpayer in the district has his part in this string, and the number of dollars, hogs, dogs, pieces of sandalwood, quantity of taro, etc., at which he is rated, is well defined by means of marks of the above kinds, most ingeniously diversified.' "

* Reprinted from *Early History of Mankind* by Edward B. Tylor, by permission of the publishers, Henry Holt and Co., Inc.

The Metal Age in South America

LATE STAGES WERE THE EARLIEST

A FEW MILES to the north, in Colombia and Ecuador, the situation was quite different. Here, the bearded white god went by the name of Bochica, and it looks as if he must have been brought up in a mining community as he taught his craftsmen not only a wide range of metal-working techniques but also how to make use of a number of metals unknown in other cultures.

He taught them to blast and cast, to plate and sinter (we didn't know either until we looked it up), to weld and solder, to forge and filigree, and to do all of these things with gold, silver, platinum, copper and lead. He taught them to make bronze and other alloys, such as gold-copper, gold-silver-platinum, and copper-gold-platinum.

He showed his people how to use these metals and these techniques in the making of ornaments such as earplugs and skewers, nose plugs and rings, beads, bracelets, bells and gorgets, also such tools as axes, maceheads, T-shaped choppers, knives, pins and needles. Fifteen hundred years later when the Spaniards arrived, the Indians on the west coast of South America were still making some of these things in the same way, but there is nothing to indicate that they had succeeded in discovering or inventing any use for metal not previously known in southern Asia.

As you already know, Dr. Phuddy Duddy insists that his "American Indians" acquired all of their knowledge of metallurgy by independently duplicating the fortuitous discoveries and purposeful inventions which had been made previously in various parts of the Old World. But Duddy is merely attempting to emulate the cuttlefish—whereby the different metallurgical processes employed, the various metals utilized, the numerous articles made are all obscured in a cloud of printer's ink out of which he hopes to escape without being caught in a net of embarrassing questions. Metallurgy is too interesting a subject, however, to be thus lightly dismissed, and there are a good many points that need to be cleared up before Duddy should be allowed to withdraw into the obscurity of his generalities.

There is, for instance, the difficulty of understanding how metal first came to be regarded as superior to stone, bone, shell or wood for the manufacture of tools and ornaments. Copper and silver can occasionally be found in the form of small lumps of raw metal on the surface of the ground, but there would be little about such lumps to attract attention, as in each case the surfaces would be rough, irregular and black from oxidization. In the case of gold and platinum, minute particles or dust could be panned from streams, but this would have to be fused before it could be manipulated, and since the melting point of gold is 1063 degrees Centigrade and of platinum 1755 degrees Centigrade, this would necessitate prior knowledge of how to make and use a blast furnace—which seems more like putting the cart before the horse than a practical explanation of how to inaugurate a metal age.

Failing dust or lumps of raw metal, the only source of copper, silver, gold or platinum would be in ores, which would be

very difficult for an uninitiated native to find, in the first place; in the second place, they would have to be quarried or mined; in the third place, they would have to be crushed; in the fourth place, the metal would have to be separated from the tailings by a flotation or smelting process.

By-passing, for the moment, the question of how raw metal was obtained even with the material at hand, it is still hard to understand why a native, who was completely ignorant of all the various methods of shaping and working metal, should have taken the trouble to wrestle with a formless and refractory medium such as a lump of copper.

By-passing, too, the explanation of why the native was determined to make an ornament or a tool out of a shapeless mass of metal when symmetrical forms were everywhere available in nature, it is even more difficult to understand how this individual could have independently stumbled on the discovery that his lump of metal could be shaped by hammering after it had been heated in a fire, that is, by forging, which is usually regarded as the easiest and most primitive method of treating metal.

Accepting, for the purpose of argument, the postulate that a South American Indian had chanced to discover a shapeless lump of black, oxidized copper; that he had thereupon determined to make something out of the lump, regardless of the lack of any suggestion prompted by the material itself or its intractability; that he had then purposefully made the duplicate invention of forging his lump into, say, the shape of an ax—so what? He would have found himself possessed of an ax of which the bit was easily dented and too soft to hold an edge, an ax more difficult to make and not as serviceable as the polished celt to which he was accustomed.

And so with most other tools and ornaments. It is only rarely

that soft metals such as copper and lead can be used in the making of tools to better advantage than stone, bone or shell; and in the fashioning of bracelets, rings, necklaces and other ornaments, the symmetry and bright colors of shells, stones, seeds and flowers possess obvious advantages over the irregular, dull and tarnishing qualities of copper and lead.

The reason for emphasizing the unsuitability of the soft metals for the making of tools and ornaments is merely the beginning of an attempt to regard with some degree of realism the problem of duplication in the New World of Old World metallurgical processes and products.

A first and essential requirement to such consideration must be recognition of the fact that there is nothing in the appearance of an irregular lump of surface metal which, to an untrained eye, might offer any advantage over any other kind of rock. In other words, there is nothing in its shape to suggest any special use or application, and there is nothing in its superficial appearance to suggest that it possesses any qualities that could be improved by putting it in a fire or banging it with another rock.

A second but equally essential requirement to a reasonable approach to the problem must be the realization that nearly all the methods employed in the treatment of metals, such as casting, plating, soldering, et cetera, are not the sort of processes which might have been stumbled upon by chance, but could only have been devised by a series of purposeful inventions and evolutionary developments as a result of long experience in the working and handling of metals.

The importance of the first of these requirements is well shown by the fact that men struggled along for a good many hundreds of thousands of years before anyone paid any attention whatever to metal of any kind. It was only about 7500 years ago that

worked copper made its first appearance, sometime around 5500 B.C., or maybe a little earlier.

The importance of the second requirement is also clearly demonstrated by the fact that after copper came into use in the Near and Middle East at about 5500 B.C., progress in metallurgy was very slow until the beginning of the Bronze Age, some 2000 years later. In Egypt, copper was first known in predynastic times during the Badarian period, which may have dated sometime about 5000 B.C. or earlier, but in 3500 B.C., at the beginning of the First Dynasty, the Egyptians were still hammering spearheads out of copper and knew nothing about casting or any of the other complicated methods of treating metals.

While opinions may differ as to the number of times and the various localities in the Old World where pottery may have been invented, there seems to be general agreement not only that copper was the first metal to be used by man but also that the event took place somewhere in the Middle East, possibly Armenia. From some such center the knowledge seeped slowly down to Egypt by way of Cyprus and the eastern Mediterranean, and also down through the Sumerian settlements in Mesopotamia to the actively developing civilization along the Indus. It was here, at Mohenjo-Daro, that gold, silver, lead and copper were being put to use by about 3500 B.C., and it may have been here or at Sumerian Ur or Kish that tin was first combined with copper to make bronze.

As new metals were brought under control new techniques of handling them were devised, or possibly it was the other way around, and the new methods enabled the smiths to deal with a wider range of metals, notably silver and gold. They had not only learned how to weld, to rivet and to solder; they had also in-

vented the infinitely more complicated process of casting by the method known to the trade as *à cire perdue*.

The technique of casting by the lost-wax method was very ingenious, and in case you should ever need to invent a copper bell in a hurry it will save you a good deal of time and trouble if we give you a few hints on how to go about it. We hasten to add,



however, that our offer of assistance should not be regarded as reflecting any doubt on your ability to independently duplicate each step in the entire process, since we would not dare to imply that you might fail where Duddy's "American Indians" are said to have succeeded in duplicating each and every detail without help of any kind.

First, if you insist on starting from scratch, you must find some float copper and, as this requires a fortuitous discovery, we suggest a walking trip through Arizona or Michigan where copper

in the raw can be discovered without too much emphasis on luck.

Next, you melt off a drop into a bucket of water to make the pellet which will become the clapper of your bell. Copper is a good conductor of heat, so it will be just as well to invent some sort of contraption to hold the copper when it gets too hot for your fingers. We take it for granted that you will not cheat by using metal tongs.

Now take some mud. Mix it up with a little charcoal. Put a copper pellet in the middle of the lump and mold it to the shape of a pear. This will form the clapper and the inside core of the bell, and you judge the size accordingly.

Now apply a coating of wax; beeswax will do if you haven't invented paraffin.

Cut a slot in the wax across the lower half to form the lips of the bell.

Make a small ring of wax and stick it to the top of the wax-covered core.

Incise some lines or other form of decoration to suit your fancy in the wax of the upper shoulder of the bell.

Now go back to your lump of raw copper and after it has been well heated draw it out to a thin thread, just as if it were chewing gum. Snip off half a dozen short lengths about half an inch long and stick them into the core, to serve as spacers in keeping the mold away from the pear-shaped core.

Mix a thin solution of clay and paint it carefully over the wax-covered pear. The clay must be sufficiently fine and clean and the solution must be thin enough to find its way into all the details of the modeled wax.

Repeat with four or five more coats, then take two handfuls of good clay and encase the model in the middle. Add one or two more handfuls until you have a good solid ball of clay.

Now add a good-sized lump, about the size of your fist, to the top of the ball and form it into a cornucopia with flaring sides.

Dig down through the center of the cornucopia until you find the top of the wax ring on your pear-shaped core.

Now set everything out in the sun to dry, and when we say dry, we mean *dry*.



Next place the mold in a good, hot fire. It will only take a few minutes to find out if the ball of clay is dry enough, as any moisture in the middle will quickly become steam, with results that are rather unpredictable.

If the clay has dried out well without cracking the wax will soon melt and evaporate.

Now put a few pieces of raw copper in the cornucopia. Set the whole contraption back in the fire and heat until the copper melts. The molten copper will slowly work its way down to the

ring and plug the hole at the bottom of the cornucopia, so that when the mold cools a partial vacuum is created in the space formerly filled with the wax that was driven out by evaporation. Molten copper will thus be drawn down into the mold and, by repeated heating, it at last percolates down and completely replaces the wax.



After the clay has cooled break away the mold, and it is barely possible that you will find a copper bell filled with baked mud and charcoal. If you have been lucky and skillful and everything has gone well you can now pick out the mud and charcoal with a bone point and you will have a nice little copper bell with a copper clapper.

Although we have never tried to make a bell in this way it is not hard to see that there are one or two things that might go wrong—bubbles and impurities in the wax, the copper, the clay

or all three. The blast furnace must be raised to 1000 degrees Centigrade before the copper will flow. The mold may be porous or otherwise imperfect. Core, cast and mold may stick together. Geysers of boiling wax, molten copper and exploding molds add zest to the experiment, and, all in all, it is a fairly complicated process. It is therefore not surprising that the craftsmen of India



and the Middle East had been mucking around with copper for 2000 years or more before they were able to ring a bell by this method.

We started off this discussion by saying that Bochica was the bearded white god who taught the Indians in Colombia and Ecuador the various way of working with metals, but in so doing we may have been exaggerating the antiquity of the age of metal in the New World. Actually, the earliest evidence of metal of any kind may turn out to be a piece of hammered gold from Nazca found by Max Uhle (he also found two bronze axes which he

regarded as pre-Tiahuanaco; hence dating early in the Christian Era). Aside from these Peruvian instances, one of the earliest recognized finds of metal in the New World is the small object of gold cast by the lost-wax process which was found under Stela H at Copán in Honduras. The date, however, is rather vague, as it might have been A.D. 520 or 780 depending upon how you prefer to correlate the Mayan calendar with ours.

With gold and bronze showing up in the earliest days of the American age of metal, with the evidence that casting by the lost-wax process was known to the smiths who first worked metal in South America, with a range of metallurgical knowledge which was about the same as that of the beginning of the Bronze Age in the Middle East at 3500 B.C., and with no evidence in the New World to balance the 2000 years of copper working that led up to the Age of Bronze in Mesopotamia and the Indus at 3500 B.C., it seems rather absurd to try to explain the age of metal in the New World as the result of the unaided ability of American Indians to duplicate the discoveries and inventions that someone else long since had made.

Civilizations Made to Order

THE MEXICAN VARIETY BY QUETZALCOATL

WHILE MOCHICA potters, Nazca weavers, Tiahuanaco masons, and Bochica's metallurgists were getting into their stride, things were also happening in Mexico. Among the first of the transpacific voyagers to reach our shores may have been some of those men who beached their canoes in the Gulf of Tehuantepec, at the northern end of the Isthmus. Of these, one group, led by Votan, struck eastward into Chiapas. Another group, under Vixepécocha, moved westward into Oaxaca to begin the series of developments that have come to be known as the Mixtecan and Zapotecan cultures.

The largest and most important group pushed north across the Isthmus of Tehuantepec under the leadership of Quetzalcoatl, who was probably the best known of all the bearded white gods. On reaching the Bay of Campeche, on the northern shore of the isthmus, they rebuilt their canoes and coasted northward through the eastern waters of the Gulf of Mexico. Then, according to a tale quoted by Tylor, "Quetzalcohuatl appeared at Panuco, up a river on the Eastern Coast. He had landed there from his ship, coming no man knew from whence. He was tall, of white complexion, pleasant to look upon, with fair hair and bushy beard, dressed in long flowing robes." He was accompanied by his retinue of builders, painters, astronomers and artists, and he at

once set them to the job of drawing up a code of laws, arranging for a series of festivals, and planning appropriate ceremonies so that the natives should be properly ruled, amused and educated for the role they were destined to play as Toltecs.

It was under Quetzalcoatl, you will remember, that "The beautiful land of the Toltecs teemed with fruit and flowers, and his



reign was their Golden Age. Poverty was unknown and the people revelled in every joy of riches and well-being."

For details of what was going on we turn to Torquemada, in his *Monarchia Indiana*, who was a little more specific in his description of the expedition after the landing at the mouth of the Panuco in southern Tamaulipas:

"Certain people came from the north by way of Panuco. These were men of good carriage, well-dressed in long robes of black

linen, open in front, and without capes, cut low at the neck, with short sleeves that did not come to the elbow; the same, in fact, as the natives use to this day in their dances. From Panuco they passed on very peaceably by degrees to Tulla, where they were well received by the inhabitants. The country there, however, was already too thickly populated to sustain the new-comers, so they passed on to Cholula where they had an excellent reception. They brought with them as their chief and head, a personage called Quetzalcoatl, a fair and ruddy complexioned man, with a long beard. . . . These followers of Quetzalcoatl were men of great knowledge and cunning artists in all kinds of fine work; not so good at masonry and the use of the hammer, as in casting and in the engraving and setting of precious stones, and in all kinds of artistic sculpture, and in agriculture."

There are several things in Torquemada's account which are interesting, as, for example, the reference to the country around Tulla as being thickly populated—and you will undoubtedly have realized without any help from us that these natives must have been the Mongoloids who were reported as moving into Mexico in Chapter XVII, plus a dash of earlier Australoids from Chapter VI.

It is also interesting to learn that Quetzalcoatl and his companions were clothed in black linen robes, low at the neck, short in the sleeve, reminding one of the robes of Biblical times in Palestine. Also of interest, because it provides such a human touch, is the ingenuous remark that these artists and scientists—like many another, before and since—knew how to erect grand edifices but were not of much use themselves when it came to laying up masonry or swinging a hammer.

Tylor's quotation also shows that Quetzalcoatl liked to do things in a big way, since:

"He made roads for travel, and favoured the wayfaring merchants from distant lands. He was the founder of history, the lawgiver, the inventor of the calendar of days and years, the composer of the Tonalamatl, the 'Sun-Book,' where the Tonalpouhqui, 'he who counts by the sun,' read the destinies of men in astrological predictions, and he regulated the times of the solemn ceremonies, the festival of the new year and of the fifty-two years' cycle."

From all of which you have probably gathered that Quetzalcoatl was a handy man to have around the house, particularly when civilizations were to be built.

Unfortunately, Quetzalcoatl was such a success that the Toltecs named their high priests after him, and consequently there has been some confusion between Quetzalcoatl the Founder and some of the later but lesser Quetzalcoatl priests, particularly the last one who was chased out of Cholula by Tezcatlipoca, just before the breakup of the Toltec empire. None of these lesser lights, however, could boast the features which are emphasized in all the descriptions of Quetzalcoatl. Here are some samples:

Tylor's reference mentioned him as "tall, of white complexion, pleasant to look upon, with fair hair and bushy beard, dressed in long flowing robes."

Torquemada described him as "a fair and ruddy complexioned man, with a long beard."

Clavijero wrote of him "as having been white, a large, broad-browed, great-eyed man, with long black hair and thick beard."

Müller speaks of him as having been "a white man (some gave him a bright red face), with a strong formation of body, broad forehead, large eyes, black hair and a heavy beard."

So, queerly enough, from these descriptions we have a more detailed description of Quetzalcoatl's appearance and the clothes

he wore than we have of our own Anglo-Saxon heroes—King Arthur, Richard Cœur de Lion, or Charlemagne.

With Quetzalcoatl busy setting up shop in Mexico, we can now take a look at Central America where some of the other bearded white gods were trying their hands at building their special brands of civilization. Some of them may have been the same individuals known by different names in different places, but they could not all have been the same person since they crop up in widely separated countries, and no two of the cultures which they sponsored were alike. In all probability these bearded Levantines had hailed from different parts of the Old World, so accounting for the variety of their individual tastes.

G — AS IN GNOME

L — AS IN LLAMA

Y — AS IN YEW

P — AS IN PSYCHIC

H — AS IN HEIR

S — AS IN SEA

WITH MENTION of Central America, one thinks at once of the Maya, their palaces, temple pyramids and steles, bearing inscriptions and awaiting decipherment which some day may reveal the past history of one of the highest civilizations in the New World. Far outweighing their architectural monuments, however, which were shared in greater or less degree by other peoples in Mexico and Peru, it is the mystery of their hieroglyphic inscriptions that has set Mayan culture apart from all other native civilizations and hangs like an aura over the ruins of their ancient cities. It is with this mystery that we now have to deal or you may think that we are trying to dodge an important issue.

To those who have had a speaking acquaintance with our modern Indians—here, there or anywhere—it will seem strange that there could have been any sort of psychic or environmental stimulus in the jungles or highlands of Guatemala that could have

been the cause of goading this particular tribe of Indians to feats of such accomplishment. And, by this time, it is hardly necessary for us to add that we do not believe that psyches or environment had anything whatever to do with the origination of those things which are associated with the Maya. On the contrary, it seems to us to be much more probable that someone must have had an awfully hard time trying to instill his ideas into their heads in the face of such an unfavorable jungle environment. Instead, therefore, of accepting the orthodox explanation that the arts of writing and arithmetic exuded from Mayan minds as a sort of mental perspiration, we are going to suggest that it may have been Zamna who taught the Maya their three R's, and, to show there is no deception, we are going to roll up our sleeves and ask you to bear with us while we try to describe how it was done.

The first step is to discover that the words and thoughts which are cluttering up your mind are of such value that they should be preserved for the benefit of mankind before they sink into oblivion. This is a common occurrence and is one of the reasons we are writing this book. (Another is that it is fun.) So you itch to become an author, and assuming that you are starting from scratch, you then devise the method and the utensils to accomplish your purpose.

Just as some children do today, so in the old days some people began by drawing a picture of the thing they had in mind. The only difference is that our children usually begin with a house, with smoke pouring out of a chimney—mothers regard this as incipient artistic genius—whereas the old-timers nearly always drew something they wanted to kill, such as a man, a deer, a dog or a snake; and so their pictures are regarded as having some meaning and are dignified as pictographs. If you have ever taken a trip into northern Arizona, you will know what we mean be-

cause you will find such pictographs in many of the caves and cliff dwellings. Sometimes they are painted in colors, in which case they are pictographs. Sometimes they are pecked on walls or flat rock surfaces, in which case they are more properly known as petroglyphs.

The next step is to string some of the pictures together to convey a little more meaning. This was the level reached by some of the plains tribes, and, if you follow in their steps, you will take a buffalo hide and draw a series of pictures showing how you tracked a deer by following its hoofprints and finally shot it—or of yourself surrounded by corpses, as a memento of the time you waylaid and slaughtered a band of Kiowas. Of course, if they got you first, one of the other fellows would have drawn the picture, and he might also show your scalp. The important point here is that although these pictures might help you to remember various episodes in your own career they would mean nothing to anyone else, and so would not provide a record that could be used in reconstruction of history—other than for the fact that you possessed knowledge of the bow and arrow, or that your enemies practiced scalping.

This was about as far as any of the Indians north of Mexico progressed in their pictographic writing, but do not make the mistake, as Kroeber warns, of thinking that this stage of writing is inherent in all men. There are people in California and Brazil, who not only cannot draw pictures but do not even want to try. How Psychic Unity works when people are so uncooperative is rather perplexing.

The next step forward, and one which few people succeeded in taking, was the rebus stage. This consists of drawing something to represent a number, a letter, or a word, and which, when combined with other drawings, may form a word of several syllables.

You might draw a bee, for example, to represent our letter B; or an eye for our I; or a pea pod for P; and so on. Then you might go a little further and draw a tin can to represent the verb "can," or a knot of rope to indicate "not." In the same way, if you wished to draw a number, you might use a signpost to represent either "to" or "two"; or a man addressing a golf ball to suggest "fore" or "four." It is a game which many of us have played and our fathers and forefathers before us; in fact, as a form of writing, it harks back to at least 3500 B.C., during the First Dynasty of Egypt.

The essential point in this, as you have undoubtedly realized, is that you are no longer drawing a picture merely to depict an object but rather the sound of the object in your language. In other words, you have now advanced to the stage of *phonetic* writing, and you will not need us to tell you that this is a great advance over anything that has gone before. It may sound fairly simple, but it is not as simple as it sounds. We have taken some rather obvious examples and it would be easy enough to string together the drawings of an eye, a tin can, and a knot, to read "I cannot," but suppose you want to write "I cannot go any further" (which is the point we have reached), what kind of pictures would you draw? You might try a man with his head against a stone wall, but if you did it would be symbolic, hence ideographic, and other people might have a good deal of difficulty in understanding your meaning—added to which, you might not excel as an artist; in this case no one would know what you meant. But we do not want to pester you with all of the many and various difficulties and complications, since these are sufficiently obvious. We are merely trying to make it clear that the development of writing words and numbers had a long and brain-twisting history. It is enough now to add that the step which followed rebus

writing was that in which symbols were conventionalized into hieroglyphs, so that, instead of going to the trouble of drawing a man addressing a golfball, you could boil it down to a small circle for the ball and a slanting line for the club, and use this as your hieroglyph for "four."

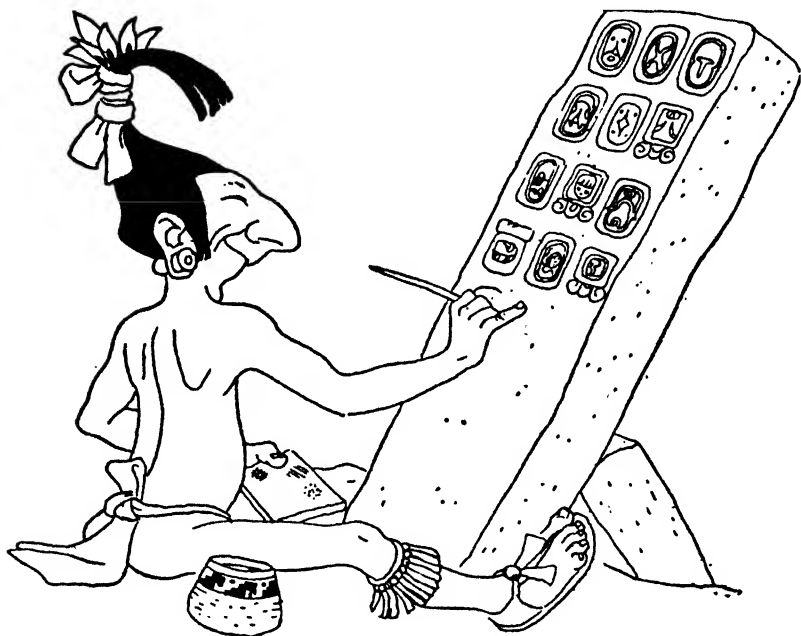
A hieroglyph is, therefore, a conventionalized symbol of a letter, a number, a word, a name or perhaps an event, which, in addition to its probably abstruse meaning, is still further obscured by having passed through the phonetic stage of an ancient and probably unknown language. To emphasize this point, you need only think of a Frenchman of today, to whom the drawings of an eye, a tin can and a knot, would be of no use whatever, if he should want to depict *je ne peux pas*—even though such drawings had not yet been reduced to symbols.

It is consequently not surprising that no one has yet succeeded in deciphering all of the Mayan hieroglyphs. Archaeologists would undoubtedly still be wrestling with Egyptian glyphs if Champollion had not found the Rosetta stone—which carries an inscription in both Egyptian hieroglyphs and current Greek; and also with Susian and Babylonian writing if Rawlinson had not succeeded in deciphering and interpreting the inscriptions on the cliff of Behistun, in Persia, where Darius recorded his victories in Susian, Babylonian and Persian cuneiform script.

With this part of our job behind us, it should be clear that it would be futile to expect any resemblance whatever between the form or meaning of Mayan hieroglyphs and those of any other people, since both the form and the meaning of glyphs, wherever found, were the concrete expression of the vocal sounds in each language. And we are not claiming that the Mayan language sounded the same as Egyptian, Babylonian or Hindu.

The concept of writing by means of hieroglyphs was exactly

the same in each of these areas, and it may come as somewhat of a surprise to learn that the mediums were also the same, and that the glyphs of Middle America were not confined to carved stone monuments and steles. In his *Handbook of Aboriginal American Antiquities*, William H. Holmes points out that hieroglyphic



writing is also to be found "Modeled in stucco, and painted on walls, vases, sheets of parchment and paper," so in addition to the concept and the method of writing the Maya also used the same materials as people in Egypt, Mesopotamia and India. With so much to go on, one then begins to wonder what sort of a tool the Maya may have used when writing on pottery or paper, since a stone chisel and a maul would seem to be rather inappropriate.

This curiosity leads to a situation which is like going up into the

attic and searching around in the old cupboards. One sees a box on a top shelf, reaches up, the string breaks, and down comes a shower of dust and knickknacks that have been carefully hidden away. Our position is very embarrassing, as in this case the box contains some objects which it is not regarded as good taste to mention in orthodox company, judging by the sepulchral silence that has heretofore surrounded them.

The objects are nothing less than seals—yes, *seals*. Not the aquatic mammal, but the “Witness My Hand and Seal” variety. Why American archaeologists should be so allergic to seals we cannot (or dare not) tell you, but the fact remains that search as you will in the indexes of books on the Maya and Mexico or in those on general American anthropology, you will find no mention of “seals” unless you should chance to look in Frans Blom’s *The Conquest of Yucatan*, in which case you will find the following gem:

“Again there are the small clay seals. They have been found in irrigation ditches, on the sandy banks of the rivers washed up by the current, and in our excavations. They are there, but we do not know whether they were used as tribal or clan markings for labeling property or simply for decorative purposes.

“Some of these seals are made for a single imprint, and others are cylinders which when rolled over a surface give a band of figures somewhat like the Babylonian roll seals. All of them are now a puzzle to us.”

Blom’s description of finding so many seals in irrigation ditches and rivers may suggest to some minds that they may have been used as prehistoric laundry marks; to others, that they were used to make impressions in wet clay; but we hope that no one will jump to the conclusion that any archaeologist could have thrown these compromising articles in the river to get rid of

them. Blom says that all his seals are now a puzzle, but all of them help to explain why some of us are diffusionists. One starts with the conception, the methods and the mediums by means of which Mayan hieroglyphs were made and finds them to be the same as those that were employed in Egypt, Mesopotamia and India. The glyphs—pictographic, phonetic and ideographic—were of the same type as those in Egypt, Mesopotamia and India. Then one stumbles on stamp seals, also characteristic of the same Old World centers, and finally winds up with cylindrical seals, which have always been regarded as the hallmarks of Egypt, Mesopotamia and India.

It would be interesting to have a mathematician tell us what the odds would be against the Maya having independently duplicated each link in this long chain. And then, since Psychic Unity is presumably as potent a force today as it ever has been, for us to be told what the chances are that some Australian tribe, or the Andamanese, or the Yahgan, may break out into a rash of glyphs, stamp and cylinder seals in the near future.

Civilizing Here and There around the Caribbean

BY ARAWAKS—OUT OF SOUTH AMERICA

WE COME now to those intrepid Polynesian explorers who, led by their bearded white Levantine friends, brought their great double canoes safely to the Gulf of Panama and hove to. These are the people we need to colonize northern South America and the Antilles, and so we are going to say that, after landing, most of them crossed to the northern and eastern shores of the isthmus, where they built new flotillas of double canoes and set out to explore the Caribbean.

This is one of those things which is easily said and quickly passed over without realizing its significance. But it is an interesting and rather important fact that, with a few notable exceptions, very few of the various tribes of Indians in North America and southern South America were seafaring. The Algonquin were expert in handling their bark canoes on inland waterways. The Chumash were able to reach the islands, some 25 miles off the Santa Barbara coast, by paddling out in their plank canoes. The Alikuluf, and the Araucanians of southern South America also had plank-sewn canoes, and there were many other tribes that made use of bark canoes, dugouts, rafts or coracles. But these were all for river, lake or coastwise traffic, and the only three areas in

the New World where boats were sufficiently seaworthy for the natives to venture out of sight of land were along the northwest coast of British Columbia and Peru and in the Caribbean Sea.

The Northwest Coast tribes will have to wait for a few minutes, as we have got our hands full launching the double canoes and hoisting the sails which Nordenskiöld grants to Central America, in order to carry out an important job of exploration—and one or two other little items that need to be attended to.

Fortunately for the diffusionist, these Polynesian explorers, who became Arawaks as soon as they had crossed the isthmus, left more than the wake of their canoes behind them. It may even turn out that some enterprising and adventurous linguist may be able to connect the Arawakan language to some Polynesian group. The tongues of some people run naturally to soft rippling words with many vowels, as among both the Arawaks and the Polynesians; others as naturally use jawbreakers. One doesn't have to be much of a linguist to tell that Liliu-o-Kalani was not a Mexican historian, or that Ixtlilxochitl * was not a Polynesian queen.

Some of these Polynesian-Arawaks, under the leadership of two men who were later promoted to godhood as Sume and Paye-Tombe, coasted along the shores of Colombia and Venezuela and around the bulge to Brazil, where they settled in the Amazon basin. Others circled up through the Lesser Antilles and so to Puerto Rico, Santo Domingo and Cuba, while still others reached the southern coasts of North America and the east coast of Mexico. Wherever they went, they naturally took their customs with them and one of these is so peculiar that it marks their passage like a string of beacons.

* We are told that an Aztec purist would pronounce this Eesh-tleell-sho-cheetl, but it still sounds like Ixtlilxochitl to us.

This custom was the *couvade*, in which the father takes to his bed upon the birth of a child, while the mother not only goes on about her daily work but even waits upon the father. From a masculine point of view it sounds like a much better idea than



sweating it out in the corridor outside the delivery room, chewing one's nails and being pushed around by unsympathetic doctors and nurses, and one's first impulse is to seek the origin of the custom in California, where we have coined some rather quaint ideas. The *couvade* seems to run far back into antiquity, however, and has been a subject worthy of comment ever since the beginning of the Christian Era when it was mentioned by Strabo. It

was recorded from China by Marco Polo, and, in more recent times by E. B. Tylor who listed it in Madras and the Malabar coast of India, and, once started on its way, the custom can be traced to Siam, Borneo, Celebes, Ecuador, Brazil and out to the Antilles. It was here, in the West Indies, that the couvade came nearest to perfection, as the pseudo patient was not required to fast or swear off drinking or smoking. The prescription merely called for "repose, careful nursing, and nourishing food," according to Tylor; and, sure enough, the same treatment was practiced in California. Up to now, the couvade has been a subject of interest chiefly to cultural anthropologists who have mapped its curves as a meteorologist plots his storm tracks, but it seems to be something which the "psycho-socio boys" might regard with pleasurable anticipation.

In addition to the clearly marked trail of some Arawakan customs, these explorers can be traced by the influences and effects they exerted upon the people of the southern United States. These people, you will remember, were chiefly Algonquin east of the Mississippi, whereas the southern Mississippi, particularly Arkansas and eastern Texas, was the stamping ground of the Caddo answering to the equation

$$\frac{\text{Mongoloid } ex \text{ Chapter XVII}}{\text{Australoid } ex \text{ Chapter VI}} = \text{Caddo}$$

Some effects are quite clear and solve a number of problems which heretofore have been rather obscure. As examples, the Arawaks introduced the custom of building palisades around their villages in Florida and part way up the Mississippi Valley, in just the same way as they and their forefathers had done in Melanesia, Polynesia, Colombia, the Amazon drainage and the Antilles.

They brought the blowgun into the eastern United States and

lent it to the Iroquois. This peculiar weapon is also a valuable clue in tracing these people back to their point of departure in the Old World. Beginning in the Bay of Bengal the blowgun was known and used by peoples in Siam, Malaya, the Straits of Malacca, Melanesia, Colombia, Peru, the Amazon basin, the Antilles and the eastern United States.

These voyagers to the United States from the Antilles are best known in Florida, but they also paddled their way up the Mississippi where some of them became Mound Builders. But before we go any further we should warn you against thinking of Mound Builders as one people, as one culture, or as all building their mounds at the same time.

The northern Mound Builders built glorified mud pies, known as effigy mounds, such as the great Serpent Mound in Ohio which coils along the ground for over 1000 feet. Many other effigy mounds, representing birds, animals and men have been found in Illinois, Wisconsin and Minnesota.

A little to the south, other Mound Builders built huge stepped temple pyramids, and this is a good time to draw attention to a fact which is often overlooked—that pyramids were not confined to southern Mexico, Yucatan and Peru. There were truncated pyramids in Tamaulipas, on the east coast of Mexico; and there are a great number in the Mississippi Valley. In fact, the largest truncated pyramid in the New World was that at Cahokia in East St. Louis, Illinois, with a base of 1100 by 600 feet, built up of earth in a series of stepped platforms, and so of the same design as those at Teotihuacán, Cholula, Monte Alban, et cetera.

Other Mound Builders built mounds that served as tombs.

Still others, but chiefly in the southern Mississippi Valley, built their houses on mounds of earth to keep their feet dry.

Some of them in Illinois made cord-marked pottery. Those in

Ohio made a plain gray or brown pottery on which they incised or engraved their intricate geometric designs and occasionally rubbed red or white paint into the patterns. The Caddo, in Arkansas and eastern Texas, who were chiefly affected by the Ara-



waks, made pottery that was sometimes red and polished, sometimes buff and dull with scroll designs in red paint.

In addition to these differences, it is also rather interesting to find that ideas varied as to how best to dispose of the dead. In some places the Mound Builders cremated—to which the Arawaks added urn burials. In other places they laid bodies at full length on the side, face or back; bent bodies into a so-called flexed

position with the knees raised up to the chin and laid them on their sides; buried them upright in a sitting position; laid them away in tombs, sometimes alone, sometimes in groups; permitted bodies to decompose, then reverently buried the bones; some painted the bodies with red ochre; some just painted the bones. About the only prehistoric burial custom in America that has not been reported from the Mound area was the queer practice in Maine, where they buried the paint and threw away the body, which reminds one of the old English custom of hanging a woodcock on a nail until it rotted off, then eating the nail.

Coming back to our Arawaks and the links they forged between the Middle Americas and southern Asia, there is still a great deal to be done and all that we have said above about cultural analogies should be regarded merely as an introduction to the subject or as bait to lure you into making your own comparisons and investigations. You may find it interesting, for instance, to follow up the beam scales, the litter, the steelyard, the T-shaped ax, the parasol as a token of rank, the coolie yoke, the shaft-hole ax, lacquer, concave and convex mirrors, the corbel arch, true embalming with preservative oil or games of hazard with a counting board—all of which are mentioned by Nordenskiöld as culture elements known in Asia and also found in Mexico, Central America or Peru. There are always certain things that interest some people and not others, but there is much to choose from. One which has always had a particular fascination for us is the maze that once was carved on one of the walls of Casa Grande, in Arizona, and which is identical with the Minoan labyrinth shown on coins from Knossos, in Crete, at a date of 200 B.C.

Another analogy that made a deep impression upon us was the discovery that the Hindu game of parchesi, of which we are very fond, was also played in prehistoric Mexico. Parchesi, as you prob-

ably know, is played on a board laid out like a cross, each arm ruled off into spaces to make ladders. Each player has four colored disks or men, and, by casts of dice, these climb the ladders or are sent home. The game called parchesi is ancient beyond memory in India, but the same game, called patolli, was known in prehistoric Mexico. Such similarity in minor details is often more convincing than the more spectacular contraptions.



Q (E.D.)

WE HAVE suggested that the Arawaks who reached Florida and those who helped in forming the Mound culture on the lower Mississippi may have come from northern South America by way of the Antilles. The time, has come, however, when we must mix up a few facts with our fancies, or we shall run the risk of being called visionary and irresponsible.

You have undoubtedly noticed that there have been many "It looks as ifs," "it seems," "probablies," and so on, and it would not have been overdoing it if there had been even more. This does not mean, however, that we are making up our tale out of nothing more than thin air. There is a great deal of very valuable evidence lying around, and it is just a question of how to make the best guesses to fill in the gaps in our knowledge.

Up to a few years ago, all guesses—good and bad—were beamed on Mexico, and as a result the local culture was credited with an antiquity that was considered to have been necessary for the duplication of all characteristic traits by means of fortuitous discoveries and purposeful inventions without any contact or assistance from any of the peoples in other lands who had already made these discoveries and inventions many years ago.

A first and long step toward the exaggeration of the time needed to bolster this theory was the use of the term "archaic"—which literally means something primitive—to cover the evi-

dences of a culture including such advanced and highly specialized traits as polychrome pottery and temple pyramids. It is not surprising, therefore, that when Cuicuilco was excavated and found to contain such pottery and such a pyramid, partly covered by lava from Mt. Xitli near by, estimates of the age of the site ranged up to as high as 8000 years.

It was not until 1928, when the Vaillants started their investigations for the American Museum of Natural History at a number of sites in the valley of Mexico, that the earlier ideas of extreme antiquity were shown to have been greatly exaggerated. At Ticoman, one of their most important sites, the Vaillants were able to show not only that Ticoman and Cuicuilco were contemporaneous, but that both should be dated at A.D. 500 or later, with emphasis on the later.

For the time being we are not concerned with the comparatively recent dates of Ticoman or Cuicuilco. We mention them merely to make it clear that the dating of Mexican and Mayan cultures has always been an unstable quantity, and that we are not violating any soundly established chronology when we fail to be governed by such dates as that of 6000 B.C. for Cuicuilco.

The period with which we are concerned is that which the Vaillants defined by excavation at El Arbolillo, a mile or so northwest of Ticoman, and which was shown to have been earlier than anything else yet found in Mexico. Although this culture was definitely early, it was not at all primitive. About 90 per cent of the pottery was a highly polished red or bay ware, made in the form of large jars, often with handles attached; large, open bowls with thickened or reinforced rims; and smaller hemispherical bowls, sometimes with incurved rims.

In addition to the polished red ware, the Arbolillo potters also made white, red-on-white, white-on-red and black polished

wares, of which the black is particularly interesting as it came in a wide variety of shapes, including tripods. Vessel surfaces were often decorated with incised or etched patterns into which red or white paint had sometimes been rubbed in order to bring out the design.

From all of this you will realize that we were not overstating the case when we said that the Arbolillo culture was not primitive, and it is very significant that nothing earlier has been found since it seems to leave no alternative than to admit that the archaic must have been introduced as a full-blown product from some outside source, such as we have suggested.

The next point to be emphasized about the pottery from El Arbolillo is that it conforms closely to the pottery from the earliest sites in other areas in southern Mexico and Central America. A valuable and significant example is the pottery found and described by Lothrop from ruins of the Atitlán district in Guatemala, but in this case both Lothrop and Vaillant introduced a new factor which is of the utmost importance to an understanding of these early cultural horizons.

Quoting from Lothrop's paper on Atitlán:

"In 1927, the writer published a short article stating the belief that there must be an as yet undescribed parent culture in Central America. Later in the same year, Dr. G. C. Vaillant and the writer presented papers before the American Anthropological Association in which an attempt was made to show that, eliminating all identified cultural remains from Central America, there was left a residue with stylistic and typological unity which in large part was of early date. We designated this stylistic current by the letter Q, as there was no evidently appropriate geographic or tribal name applicable to it. Dr. Vaillant believes that Q elements are present in the east coast cultures of Mexico and that the so-called

'Mexican' traits found in the Mississippi Valley reflect this cultural plane. The writer believes that Q in Central America probably represents a blend of traits borrowed from Early Valley of Mexico, from South America and from an even more ancient and as yet unidentified local culture."

Turning now to Vaillant for details of the Q complex and his ideas of the significance of its distribution, we quote from his *Resemblances in the Ceramics of Central and North America*, in which he outlined the purpose of his paper when he said:

"I shall endeavor to call attention to several curious parallels found mainly in the ceramics of Central America and the Southwestern and Southeastern United States that seem to indicate some sort of relationship, even taking into account the barrier of five hundred kilometers of archaeologically unknown territory."

He then went on to say:

"While the Antillean influence on the far southeastern United States is attributable to direct contact, the ceremonial aspects, that seem drawn from Mexico, might have been introduced by a few individuals. The traits existing in the pottery of the western drainage of the Mississippi and to a less degree in Tennessee, however, are of a character that indicates a stronger source of infection than a symbolism brought in perhaps by exiles from another land. In short, in the western Mississippi valley, there exists apparently some sort of action by one culture upon another. These ceramic traits which are quite foreign to the run of the pottery of the Eastern States include:

1. Tripod support of vessels.
2. Funnel neck jars.
3. Double bodied jars.
4. Rarely the shoe form of vessel.
5. The high and low forms of annular base for vessels.

6. Spout handles.
7. The composite silhouette form of bowl.
8. Vessels modeled in the effigy of animals or humans.
9. Vessels with spouts, plain and in effigy.
10. Vessels with the head or features attached."

And ended with the conclusions that:

"It does not seem possible to explain away such parallels as these by independent evolution of styles since the basis of the ceramic development of the eastern United States does not seem to contain the germs for this Western Mississippi complex. Nor from this same lack of transitional steps is it probable that the styles developed there and then moved south. Yet to what epoch and to what culture in Central America, on the other hand, do these forms relate?

"As an inexplicable residue among the ceramics of Guatemala, Honduras, Salvador, and Costa Rica, occur such traits as the composite silhouette, decoration by incision, support of vessels by legs or cylinders, spouted vessels, pot stands and effigy forms. These elements obtain under such conditions of antiquity as beneath the volcanic ash of Salvador, under Old Empire Maya remains at Holmul and Uaxactun, and associated with pre-Maya material at the Finca Arevalo in Guatemala. With the exception of decoration by incision and the universal composite silhouette, such traits are rare or absent in the early cultures found under the lava and on the hills of Mexico, but their distribution is very wide, extending as far as Recuay in Peru, the earliest Peruvian site to date, and north of Vera Cruz and as a scattering residue in northern Mexico. Doctor Lothrop and the writer designated these elements as influence Q, since we know neither their center of distribution nor their makers. This complex occupies in Central

America a position analogous to the relation between the primitive cultures in the Valley of Mexico and the Toltec and Aztec cultures."

Without intending, in any way, to imply that either of these two men would have agreed with the very unorthodox ideas we have been advancing, it would, nevertheless, be hard to find stronger support for the outline we have been drawing.

Here is a list of ten clues which Lothrop and Vaillant recognized as being sufficiently distinct as to be capable of identification as components of the Q complex, whether found in areas as widely separated as eastern Texas and Peru or in the earliest levels at sites in Central America, Mexico and Peru. Vaillant made it clear that he did not think it was possible that these traits could have been independently invented in the Mississippi area "since the basis of the ceramic development of the eastern United States does not seem to contain the germs for this western Mississippi complex." Nor could they have originated in Mexico, since "such traits are rare or absent in the early cultures found under the lava and on the hills of Mexico."

In 1930 when Vaillant wrote his paper and denied the Mississippi Valley and Mexico as the possible sources of these traits, there was an implication that the origin of the Q complex might be found in Central America where "These elements obtain under such conditions of antiquity as beneath the volcanic ash of Salvador, under Old Empire Maya remains at Holmul and Uaxactun, and associated with pre-Maya material at the Finca Arevalo in Guatemala."

By 1933, however, when Lothrop wrote his *Atitlán*, he believed "that Q in Central America probably represents a blend of traits borrowed from Early Valley of Mexico, from South America and from an even more ancient and as yet unidentified local culture."

Here then we are presented with a number of traits that are associated with one another sufficiently often for Lothrop and Vaillant to regard them as constituting a complex, which came from the earliest levels in each area where they have been found, and the source of which is unknown.

We started off this chapter with the intention of mixing a few facts with our fancies, and to fulfill this purpose it is only necessary to apply what Lothrop and Vaillant have said to the scheme we have been proposing. Here are some facts:

First, we can begin with the fact which they have established—that there was once a parent culture which, when all local frills and specializations had been stripped away, consisted of a residue of Q traits, plus such other things as may eventually be assigned to the complex.

Second, there is the fact that Lothrop and Vaillant have identified the Q complex in the western Mississippi area, Vera Cruz, on the east coast of Mexico, Guatemala, Honduras, Salvador, Costa Rica and Peru.

Third, there is the fact that Lothrop and Valliant found the Q complex in early deposits in each area where it has been identified.

Fourth, although Lothrop and Vaillant have not mentioned any dates in connection with Q, it is a fact that no one has yet been able to demonstrate, in any of the areas where Q occurs, that the culture can be dated as earlier than the time of Christ.

Fifth, it is a fact that the Q traits are not primitive.

Sixth, it is a fact that no one has yet been able to determine the source of Q.

Now, mixing these six facts with a few fancies, we suggest that Q can best be explained as constituting a part of that broad cultural composite which suddenly made its appearance in north-

western and western South America, Central America, southern Mexico and on the islands and shores of the Caribbean and the Gulf of Mexico, a short time before the birth of Christ.

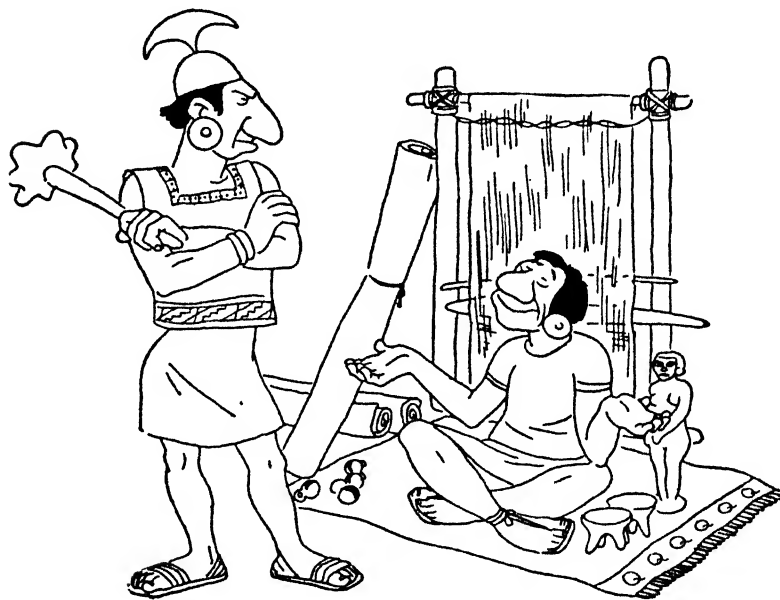
Judging by the developed qualities of the Q features, their widespread distribution, their underlying resemblances wherever found, their sudden appearance, and the complete lack, throughout their range, of any evidence of more primitive forms or of the original and evolutionary stages that must have preceded the grade which had been attained when Q was first recognized in the Americas, it seems more reasonable to believe that the culture, as a whole, must have been introduced from abroad rather than cling to the unsupported dogma that the Q complex had developed out of a series of fortuitous discoveries and independent inventions within some native American culture of which no trace has yet been found.

Once this point has been reached, the rest is easy. It is simply a question of looking over the various foreign centers and deciding which comes nearest to filling the requirements. Our choice is the Near and Middle East, where red, bay, brown and black polished wares were the prevailing types, where vessel shapes included tripods, tetrapods and other forms similar to those of the Q complex, and where geometric patterns, incising, paint-filled incised designs, red-on-white and white-on-red decorations were applied to the pottery.

With this as a starter, you would then go on to add metals, alloys and metallurgical processes, textile products and techniques, temple pyramids and their architectural accessories, and a great and increasing number of miscellaneous traits, all of which have been found within the range of the Q complex, and all of which resemble and are often identical with the same traits in India and the Near and Middle East.

The significance of what has been said above may be realized more vividly if a suggestion we made a few years ago is followed.

Instead of thinking of certain assemblages of traits as having been brought to America by diffusion, try, for a moment, to think



of them as having been stolen from some point in Asia. Begin by supposing that an establishment in Delhi reported to the police that some bronze figures, some gold bells, a vertical loom, some tripod pottery trays, a roll of tapestry and other woven articles had been stolen.

The theft was broadcast and picked up by the police in, say, Peru or Guatemala or Mexico.

None of these articles had formerly been known to exist in any

of these places, but all of them are now found by the Peruvian police in the house of a man in, say, Nazca.

Do you think the authorities would be satisfied with an explanation that the man had succeeded in independently duplicating each and every item through a series of fortuitous discoveries followed up by another series of purposeful inventions?

Heading in the Right Direction

SOMEWHERE in this book we have said that if you could show the same combinations of culture traits in two separate areas, and if, on top of this, you could show a similarity of physical features in the people of the same areas, the case would almost certainly have to be accepted as an example of diffusion. We have given you some of the evidence for the similarity of culture between Mexico and Central and South America on the one hand, and Oceania, India and the Levant on the other. Now for one or two physical characteristics.

In dealing with the physical appearance of a people in a certain area it is often difficult and frequently impossible to trace their features back into the past. We are rather fortunate, therefore, in having several significant clues in regard to the ancient peoples within the area of the Q complex.

One of the first but least important characteristics is that of their skin color. It is very peculiar, for instance, to read of mummies in Peru with red and ash-blond hair, and then, entirely aside from any references to bearded white gods, there are several other references to these early people as having been light in color, as, for instance, the quotation from Tylor: "The Toltecs themselves were not like the small, dark Aztecs of later times; they were large of stature and fair almost as Europeans." And it is consequently rather reassuring to read in Radin's *Indians of South America* that the Arawaks were "men of light color, with long hair and beards."

A complicated job confronts us when we try to disentangle the various kinds of people in Mexico and Central and western South America who made up the rank and file of the population. Aside from any possible canoeloads of Melanesians who might have landed on our shores prior to about 300 B.C., all of South America, Central America and North America, up to about 34 degrees north latitude, had been the stamping grounds of the long-headed Australoids, with their beetling brow ridges to give them character.

At about 300 B.C., however, the fifth migration came over from northeastern Asia across Bering Strait into North America, and these people were out-and-out Mongoloids with slant eyes and broad skulls. As described in Chapter XVII these Mongoloids moved down through North America, leaving large numbers in the Mississippi Valley, down the east coast of Mexico, with some working up to the valley of Mexico and others pushing south to the Isthmus of Tehuantepec. Some may have reached South America, but we doubt it as travel on foot along the isthmus is very difficult, and there is no reason to believe that these Mongoloids of the fifth migration knew anything about boats or large canoes. Wherever they went they found people cultivating corn, and they promptly settled down to learn the tricks of the trade and prepare for the big days ahead.

It would probably be a good guess to suggest that these were the people to whom Dixon was referring when he described his Palae-Alpines of the New World. They may also have been Haddon's Neo-Amerinds; if so, they had broader noses than other Mongoloids. In any case they were the people who supplied most of the actual labor when it came to building native American cultures.

The problem becomes complicated with the next batch of

Mongoloids, who did *not* enter through North America, who reached the Middle Americas from across the Pacific, whose skulls were also brachycephalic or broad-headed, and whose first appearance coincided with the first appearance of pottery, metallurgy, textiles and architecture in exactly the same areas.

It would be very easy to lose these *brachys* by merely saying that they were Mongoloid, and so mixing them with the ruck of "American Indians," but fortunately this brand of Mongoloid tried to improve on nature by changing the shape of their skulls, or, to put it more scientifically, they practiced cranial deformation, so stamping themselves with a trade-mark that makes it possible to follow them wherever they went.

There are two points about these descriptions, however, that need further explanation:

First, you may be wondering how Mongoloid broad-heads reached the Middle Americas from across the Pacific. Hooton has made this very clear, so we leave it to him:

"In southeastern Asia they [Mongoloids] mixed with long-headed primitives of the pre-Dravidian, Negro, and Negrito types, especially the first, to give rise to many composite stocks in which Mongoloid features overlie those of Negroids and Whites. One of these blends was the great race which I have called the Indonesian-Malay. Mixtures of this composite race with minor factors of Oceanic Negroid ultimately produced the Polynesian race which at a later period passed through the Malay Archipelago and Melanesia and peopled the islands of the far Pacific."

Which merely shows that anthropology is quite simple if one can find the right man to quote.

Second, you should know about other peoples who emphasized their broad-mindedness by further flattening their occiputs. These were all just where they should be. As usual, we can start

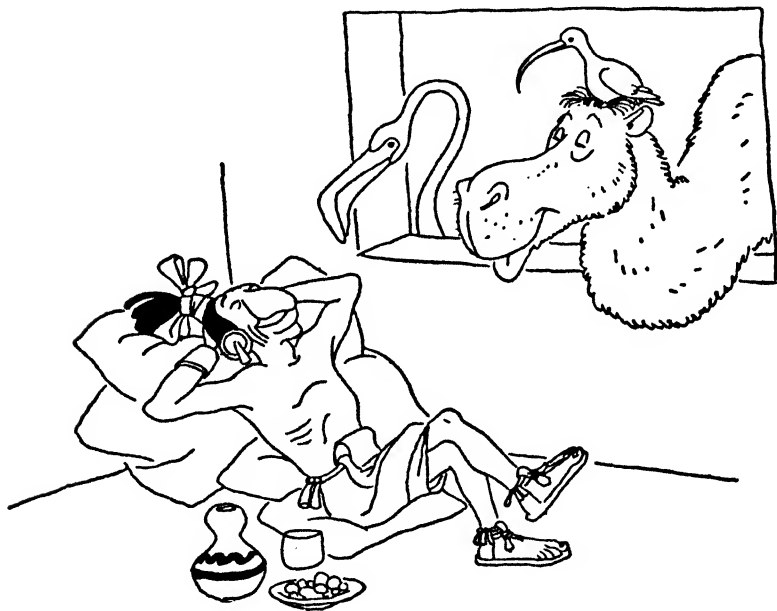
in the Near or Middle East with the Armenoid peoples whose heads have sometimes been classed as sugar loaf. Then there is a big jump eastward to Polynesia, where Linton tells us that "Head deformation also seems to have been nearly universal in Polynesia," and he goes on to tell us how it was done:



"In Samoa the child was laid on its back, and its head surrounded by three flat stones, one at the crown and one on either side. The forehead was then pressed with the hand to flatten it, and the nose was also flattened. In Tonga the child was kept lying on its back on a hard surface with its head pressed against a flat piece of wood, both the back and top of the head being flattened in this way. In the Marquesas infants' heads were shaped by long-continued rubbing, a long head with a retreating forehead

being much admired. In Fiji the coast natives deformed their infants' heads to make them short and round, while the interior tribes deformed theirs to make them long and narrow."

Which is interesting because he makes it clear that the cranial deformation was not the result of chance, such as might result from the careless use of a cradleboard.



Once arrived in the New World, the Peruvians favored the long tapering skull of the Marquesas; occipital flattening was preferred by the people in Central America, Mexico, up into the Southwest and in the Mississippi Valley.

One of the most distinguishing features any human being has yet succeeded in producing is that type of a nose which looks like a triple hybrid between a curlew, a flamingo and a dromedary.

Failing such an origin, the best we can do is to say that it first appeared on frescoes depicting ancient Hittites, later becoming the hallmark of all peoples of the eastern Mediterranean.

In 324 B.C., when Alexander was gathering shipwrights and sailors from the eastern Mediterranean to build and man his fleet, there is nothing more certain than that these men were equipped with this type of proboscis.

Beginning in the Near East, when you find this beak in Arabia it means little or nothing, as the Arabs were in close contact with the Levant.

India is a little farther away and the feature is not so ubiquitous, but, when found, it could be explained as due to the ancient connections between the Indus and Mesopotamia.

These explanations cannot be used in New Guinea, however, because here you find a supermodel on the faces of the local Negroes, whereas such noses are unknown among Negroes in all other parts of the world. It does not seem to be the sort of thing anyone would try to duplicate independently, and the only answer seems to be that our Levantines tried to leave it behind them as they passed by.

The arrival of these Armenoid noses in Central America, with Levantines back of them, is also stamped on the Maya, whereas, in this exaggerated form, the type is rare or unknown amongst other American Indians. The Maya seem to have been rather proud of the distinction, as they carved it in stone on their steles with such emphasis that it looks as if they were trying to out-nose the Armenoids.

That these stone carvings were not an exaggeration is attested by the following quotation from Earnest Hooton, in *The Maya and Their Neighbors*:

"It is of considerable interest to ponder the fact that intentional

deformation of the skull in a people with hooked beaky noses is associated with the development of high civilizations in two widely separated areas . . . the Near East and the Western



Cordillera of the Americas. It intrigues me to note that cranial deformation is conspicuous by its absence in Northeastern Asia, and, in fact, among the peoples of Asia who can be described from a racial point of view as Mongoloid, and that prominent convex noses, although observable in Asia amongst mixed

Mongoloid peoples, are absolutely incompatible with a full development of Mongoloid physical characters. I should say that neither these flattened heads nor those proboscis-like noses are, nor have been, at home in Mongoloid Asia. Perhaps the former have been squashed and the latter pulled out as an independent manifestation of Americanism, long after the undeformed and un-nasalized ancestors of the American Indian reached the New World by swimming the Bering Straits or hopping from stone to stone through the Aleutian Isles. If so, the evidence of the physical type of the Mayas suggests a long process of specialization and inbreeding and agrees with the highly evolved character of their culture. The Maya culture may have evolved *in situ* and I am perfectly willing to let it go at that, and even to leave it there, but I think that the long, curved noses and the short, flat heads probably did not. I am inclined to think the ancestors of the classical Mayas were not very different from the White hybridized type which we call Armenoid—hook noses from Henry Field's Iranian Plateau race, round heads from the good old Alpines—and inspired with similar aesthetic ambitions to improve their head form."

It is only fair for us to assure you that Dr. Hooton did not write this at our request, but it does rather hit the nail on the head, doesn't it?

All Sorts and Conditions of Mongoloids

WE HAVE been dealing with groups of people who managed to combine so many distinguishable clues in their make-up that it has been possible to trace some of them three quarters of the way around the globe.

The physical clues all lead to a point of origin in the Near East, with kernels left along the trail as it winds through the Indian Ocean to Indonesia and out across the Pacific through Melanesia and Polynesia to the western shores of the Americas. Upon leaving the Levant the physical composite included a convex Armenoid nose, light skin color, beards, black hair—sometimes wavy—and broad heads, accentuated by intentional occipital flattening. Upon reaching Central America the composite was still intact, with a trail of Armenoid nose blobs and intentionally deformed heads to show where it had passed. En route it had picked up a little Indo-European and a little Mongoloid and whatever else went into the constitution of a Polynesian, and it is merely a matter of adding a little here or dropping something there to fit the requirements.

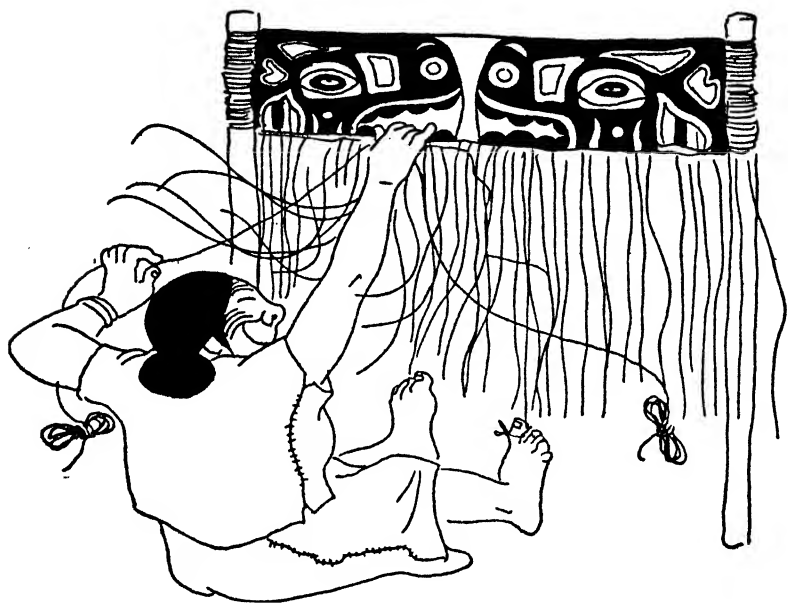
The cultural clues follow exactly the same trail, and after all that has been said we will not labor the point further than to indicate that of the traits which have been listed as occurring in Peru, Central America or Mexico, *all* are known to also occur in India and the Near or Middle East. Since such things as Armenoid noses, flattened occiputs, truncated pyramids, polished red

pottery and many other significant traits are either rare or not known at all in northeastern Asia, it is clear that they did not enter North America through Siberia and Alaska. It is equally clear that if they were not brought across Bering Strait by the land route, they must have been water-borne across the Pacific, although it is quite possible that some groups may have preferred to keep within sight of land and so skirted the coasts of Asia and North America.

That a fairly large number of people may have chosen the circumpacific route is suggested by some of the groups among the islands and along the shores of British Columbia. These are the various tribes, such as the Tlingit, Tsimshian, Kwakiutl and others who, though often speaking different languages, collectively make up the so-called Northwest Coast culture. They are chiefly of interest in the present connection from having shared several peculiar things with the Maoris of New Zealand, including such traits as plank houses with gable ends, totem poles, feather mantles, U-shaped fishhooks with a straight barb lashed to one arm of the U, and stabbing clubs, or meres. Another peculiar contraption that deserves mention is their suspended loom, in which the warp threads hang free from the top of the frame and the weft threads are pushed *up*. It always reminds us of the Corticelli kitten all tangled up in a ball of yarn.

While these afford interesting comparisons between some of the traits of modern Northwest Coast tribes and those of modern Polynesian Maoris, it may be even more significant that other modern Northwest Coast traits resemble those of some of the prehistoric cultures that we have been calling Arawakan, with the added suggestion that the Arawaks may also have been Polynesian. Although advanced by him as an example of the independent convergence of languages, there may be a good deal of

significance in the fact that Kroeber has found a striking resemblance, particularly in its ancient form, between the structure of Indo-European and the Penutian language of some of the tribes along the northwestern coast and in northern California. For those of us who suspect an ancient possible connection between the Penutian-speaking tribes of the Northwest Coast and



some of the Indo-European Polynesians, it would seem that resemblances between Penutian and the *ancient* form of Indo-European would indicate divergence from a former common ancestry rather than the fortuitous convergence of two languages widely separated in modern times.

Turning to other analogies, we would emphasize the great dugout canoes of the Northwest Coast, 70 feet long and equipped with sails, since these explain how some of the people managed

to reach North America. These canoes, which were large enough to carry 50 or more men and capable of carrying a load up to three tons, were ordinarily used as single canoes, but it is interesting to find in Pliny Earle Goddard's *Indians of the Northwest Coast* that they were also used as double canoes. He adds several other significant features in his description:

"The size varied from those not more than eight feet in length and carrying only one man to the great ocean-going canoes seventy feet long and capable of carrying fifty or sixty men. A Haida example in the Museum is sixty-four feet long and has a beam of eight feet. With such canoes the Haida visited as far south as Puget Sound, seven or eight hundred miles from their home.

"These canoes were propelled with paddles having a lanceolate blade and a crutch-like handle. A somewhat longer paddle was used by the steersman in controlling the direction of the craft. Canoes were also sometimes sailed, perhaps even before contact with Europeans. The sails were made either of very thin planks lashed to a framework or of matting. A wooden sail in the Museum about nine feet square and five-eighths of an inch thick, is made of several pieces joined by sewing with spruce root. To prevent splitting, the ends of the sail are reenforced by strips of wood with the grain running in the opposite direction. Such sails were employed particularly when two canoes were lashed together and covered with house planks."

The description of the slat or matting sail is of particular significance in suggesting some connection with or derivation from the slat or matting sails one associates with Chinese junks; hence, a further implication of a circumpacific route past China.

Some of the Northwest Coast tribes also built palisades around their villages, and when it came to a fight they donned wooden

helmets and protected their bodies with rod or slat armor. They hammered copper. They liked and worked nephrite, or true jade. They carved in the round, wore elaborately carved masks, used the double-headed eagle as a symbol, smoked tobacco in tubular pipes, mixed lime with their chewing tobacco, practiced cremation and, last but not least, they emphasized their broad heads by occipital flattening.

The reason for drawing attention to the possible relationship of some of these Northwest Coast tribes to the people down in the Middle Americas and for suggesting that both may have had a Polynesian ancestry is to draw as sharp a line as possible between these peoples and another migration which has been moving into North America across Bering Strait while we have been concentrating on things farther south.

This migration is also made up of Mongoloids, but this time, in addition to their physical features, the various tribes can be grouped into the Uto-Aztecan language family. These related tribes make up a long list, and so we will only mention the most prominent groups and their general location. These include:

Shoshoni in Wyoming and Idaho

Bannock in Idaho

Snake in eastern Oregon

Paiute in Nevada

Ute in Utah

Uncompahgre in Colorado

Gabrielino in southern California

Hopi in Arizona

Tanoan Pueblo in New Mexico

Kiowa in Oklahoma

Pima and Papago in southern Arizona and northern Sonora

Yaqui and Mayo in southern Sonora and Sinaloa

*Tarahumare in Chihuahua**Huichol and Cora in central Mexico**Aztec in Guerrero, the valley of Mexico and east to the gulf*

There is nothing here to which the staunchest of the Old Guard could take exception. All of these tribes are quite definitely members of the Uto-Aztecan family, and all must be classed as Mongoloid and as sharing all the characteristic features of the type. But here resemblance ends, and it will be worth while to look into what these different tribes did in their various locations. As most of their activities were late enough to be dated, we will add a few dates to keep them in proper perspective.

The only Uto-Aztecan tribe that ever found its way to the east of the Rockies and stayed there, was the Kiowa who belonged to the Tanoan branch of the family. The Kiowas established themselves in Oklahoma as buffalo hunters and so acquired a share of Plains culture from their buffalo-hunting neighbors.

In northern Arizona, the Hopi of the Shoshonean branch of the family made their appearance at about A.D. 700 and promptly began to follow in the steps of the people who were building a typical Puebloan culture in Chaco Canyon, a few miles to the east in northwestern New Mexico. As the Chaco people changed from pit houses to small houses, to small pueblos, to large pueblos, the Shoshonean Hopi were just one jump behind. The Chaco people made black-on-white pottery; so did the Hopi. They wove the same kind of baskets and blankets; they flattened their heads in the same way; the only time when the Hopi did not copy the Chaco was when the Chaco died out at about 1150.

Everything that has been said about the Shoshonean Hopi can be repeated for the Tanoan Pueblos, also of Uto-Aztecan stock who started the Mesa Verde culture on its way at about A.D. 800—

again by riding on the tails of the Chaco—and wound up in the upper Rio Grande where you may have seen them at San Ildefonso, San Juan or Santa Clara.

Off to the west, in southern California, another Shoshonean tribe wandered out to the coast near Los Angeles, ran into some



of the old resident Australoids, took over their coastal culture and came to be known as Gabrielino.

Another large group broke away from the main body that was heading south into Mexico and made themselves at home among the Hohokam of southern Arizona at about A.D. 800, thus fitting themselves into a rancheria type of life, to grow up into the modern Pimas.

Of the rest, the Mayos, Yaquis and Coras dropped off at intervals as they passed south through Sonora and Sinaloa, while the Aztec section of the family pushed on to the south, reaching the valley of Mexico sometime around A.D., 1000, where they made life miserable for our old friends the Toltecs, finally overcoming them and setting up the Aztec empire at about 1300.

To make up your mind what the Uto-Aztecan people possessed of their own in the way of culture when they arrived in North America, the best thing to do is to look over the northern Shoshonean tribes, such as the Paiute and Bannock, who settled in the Great Basin where there was nothing for them to borrow. This shows that they have never been able to rise above the hand-to-mouth existence of Food Gatherers, and we suggest that the history of the Uto-Aztecan people may represent a fair cross section of the origin and development of culture of American Indians in general. They seem to have started pretty close to scratch. In the western plains they borrowed a buffalo-hunting culture; in northern Arizona they took over a Pueblo culture; in southern Arizona they acquired a rancheria culture; in southern California they waded out to a coastal culture; and in the valley of Mexico they took over the Toltec culture. The man who had never touched a violin, but who, when asked to play one in Dvořák's *New World Symphony*, said that he would be glad to try, must have been Uto-Aztecan.

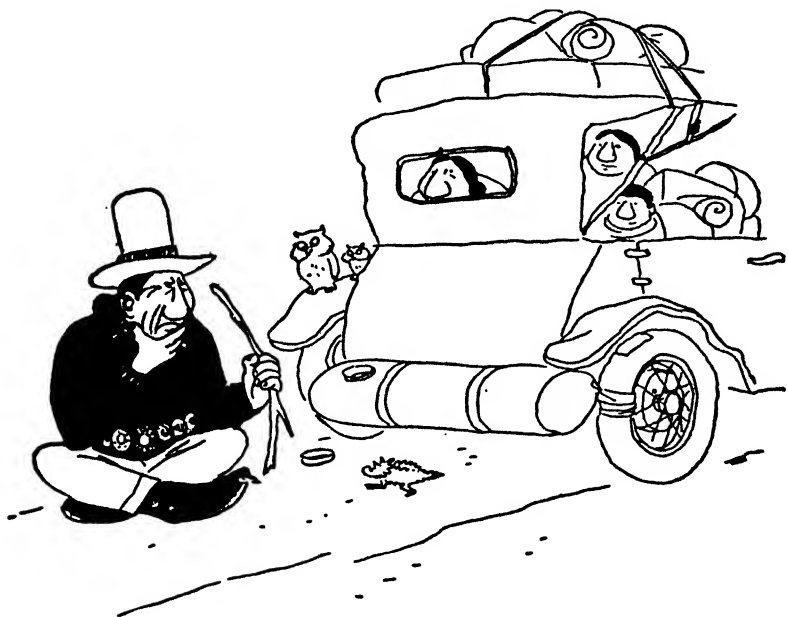
The Uto-Aztecan was followed by the Athabascan migration, and judging by the arrival of the Uto-Aztecs in the Southwest at about A.D. 700, it looks as though the Athabascans were beginning to crowd them in Canada soon after 600. As the Athabascans moved in the Uto-Aztecs moved out, until all of north-western Canada and a large part of Alaska was filled with Athabascan tribes calling themselves the Déné—the People.

Many of them are still up there, but sometime around 1100, or a little later a large number started southward through the western plains and reached the Southwest at about 1200. One branch of this movement, the Navaho, pushed into southern Colorado and northern New Mexico, their advent marked by their overwhelming of the Pueblo Indians on Mesa Verde, who



were building their cliff dwellings up to 1280, but built none thereafter. In southern New Mexico and Arizona the arrival at 1200 of these virile have-not Athabaskan nomads, in the guise of the Apaches, resulted in the obliteration of all of those Pueblo peoples who had occupied the region lying between the Rio Grande to the east, the Verde to the west, the Zuñi villages to the north, and the Gila to the south—an area, all told, of about 25,000 square miles.

It may be that the Athabascans provide an example of the molding of Indian culture. The Déné tribes in western Canada are primarily caribou hunters with few culture traits that can definitely be claimed for them. They use toboggans and snowshoes, both of which appear to have been borrowed from their



Algonquin neighbors; in passing southward through the plains the Navahos and Apaches learned to make pottery; from the Pueblos the Navahos learned to cultivate corn and acquired the arts of sand painting and weaving; their silversmithing was taught them by the Spaniards; their sheep were presented to them by the United States government. Their language, we believe, is their own.

In the case of the Uto-Aztecans tribes, we have indisputable

evidence that they adapted themselves to not less than five different culture patterns by the sole process of diffusion. In every instance, each trait of the cultural complex was in existence before they took a hand, and subsequent developments were merely the result of their imprint on what other people had been doing. In no single instance is there a shred of evidence that any Uto-Atzecan added an independent invention or discovery.

In the case of the Athabascan migration, the process of acculturation by diffusion is going on before our eyes, but the only duplicate independent discovery which can yet be credited to the Navahos is that they have recently found out that their flivvers will not run without gas.

The End of a Beginning

OUR LAST job must be to arm you against some of the time-worn arguments that will be hurled at you should you ever discuss any of these ideas with a member of the Old Guard.

One of the most familiar objections to the diffusion of Old World knowledge and traits into the New World as recently as 300 B.C., is the absence of an Iron Age in the Americas. Those who raise this objection, however, seem to have overlooked the fact that the metallurgical processes of an Iron Age—blast furnaces, smelting and casting—were all known to the Indians of Colombia and Ecuador.

Other factors which have a bearing on this problem are that, although the Indians are said to have been bursting with ideas, there was a singular lack of dissemination of such ideas over even short distances. The Indians in Colombia and Ecuador seem to have formed a cartel to restrict competition by jealously guarding their processes, but, queerly enough, they confined themselves largely to the jewelry business rather than making metal tools which might have enjoyed a wider market. Although some beautiful gold ornaments and copper bells have been found in Mexico and Yucatan, the Toltecs and the Maya seem to have specialized in things other than metallurgy. In the same way, the Maya do not appear to have been able to sell to anyone else their ideas of how to write or make calendars. We only mention this

as a suggestion that cartels are not conducive to commercial expansion or cultural advance.

A factor that also may have been partly responsible for the lack of an Iron Age in the heart of the metal industry was the apparent scarcity or absence of iron ore in Colombia and Ecuador. We have been unable to find any reference to such ores or industries even today, and it may be that iron itself is an essential ingredient in an Iron Age—unless, of course, it can be independently invented.

Another argument which is often used is that the immigration of a people who were sufficiently advanced to have known anything about pottery, et cetera, should have resulted in the introduction of Old World plants. And to this, there are several answers.

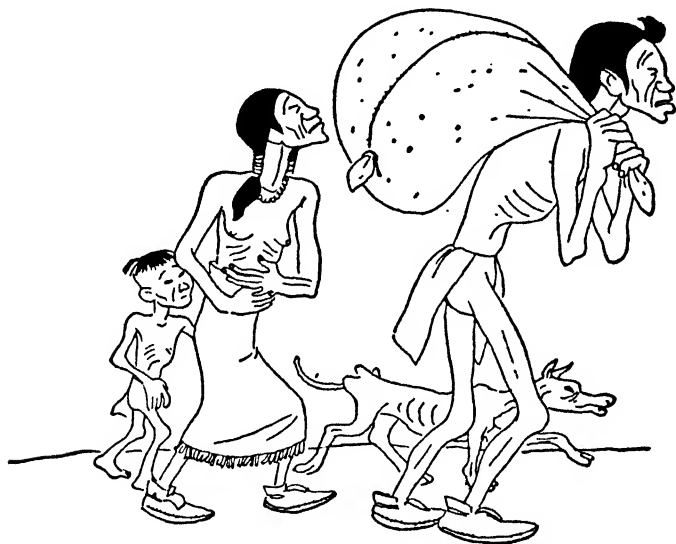
First, there is the unfortunate but not altogether unfamiliar tendency to disregard evidence that does not fit the orthodox theory. This contention completely ignores the sweet potato, coconut palm and calabash, which, one way or the other, were carried across the Pacific.

Second, it has never seemed quite reasonable to us to demand that a farmer in northern China should start his trek over into America with a sack of wheat (if he had it, which we doubt), over his shoulder. Admitting, for the moment, that he did carry a sack of grain up into the forests of Alaska, could any man refuse the pleas of hunger of his children and women during the long journey on the grounds that his grain must be saved for planting in a Promised Land that no one had seen or knew about?

Third, *if* cereal seeds had been carried over from northern China to arable land in North America it is highly improbable that the seeds would have germinated unless the journey was made in less than ten years. The following excerpt from a letter

we have received from Dr. J. H. Kempton, Chief of the Bureau of Plant Industry, will make this clear:

"Given careful conditions of storage and good seed there would be little, if any, germination after ten years. Even where germination has taken place with old seed the vitality of the young plants has been so impaired that they will not grow to



maturity without unusual care. In the case of wheat where special precautions have been taken to reduce the moisture in the seed to a very small amount and storage has been in sealed containers, some germination has been obtained after twenty years, but this is very unusual. With corn we have never obtained any germination after ten years."

Fourth, in the light of what has been said above, it must be clear that we do not think that cereals could have been carried over from Asia into America by the migration of peoples across

Bering Strait. There is, however, a problem that has floored both archaeologists and botanists up to the present moment—the discovery of the origin of maize, or Indian corn. Until a few years ago this question had been settled by one of Dr. Phuddy Duddy's authoritarian pronouncements. Becoming a botanist for the moment, Phuddy announced that corn had been derived from *teocentli*, a Mexican fodder grass. But this idea has recently been discredited by botanists on the ground that corn and *teocentli* are each so highly specialized that neither one could have been derived from the other. So Phuddy must begin all over again.

Although we realize that the idea is very unorthodox, there is the following rather disconcerting quotation from the Encyclopaedia Britannica, 14th Edition, article "Maize":

Bonafous, however, (*Histoire Naturelle du Maïs*) quotes authorities (Bock, 1532; Ruel and Fuchs) as believing that it came from Asia, and maize was said by Santa Rosa de Viterbo to have been brought by the Arabs into Spain in the 13th Century. A drawing of maize is also given by Bonafous from a Chinese work on natural history, *Li-chi-tchin*, dated 1562, a little over sixty years after the discovery of the New World.

So on top of everything else, it is possible that the Great Khan entertained Marco Polo with corn on the cob, and if some of Anderson's ideas about the origin of corn turn out to be right, the Great Khan's corn came from Burma.

And now we come to the argument to end all arguments against the diffusion of knowledge or traits from the Old to the New World—the so-called absence of the wheel in America.

This has been dinned into our ears, in season and out, and it would be difficult if not impossible to find any book on American anthropology in which this lack has not been stressed. We used to cringe and cower and mutter excuses about there being no draught animals over here, only to be sternly reminded of bison,

llama and alpaca (a rather silly answer, by the way, as no one has yet succeeded in hitching a bison or a llama to a cart during the 450 years since the Spaniards brought in their wheeled cannons and wagons). Then we tried to squirm by with spindle whorls as indicating knowledge of the flywheel from Arizona to Peru—which drew contemptuous snorts. Then we fell back on such



excuses as that the wheels must have been made of wood, and so had perished, or that it might have been pretty tough pushing a wheelbarrow or a chariot through the muskegs and forests of Canada—all to no purpose. We even tried to confound our inquisitors by countering with the question as to why the Maya and the Inca needed miles of paved roads, 25 feet or more in width, if wheeled vehicles were unknown—but answer there was none (and we doubt if there is one).

And then we learned that prehistoric wheels in Mexico had

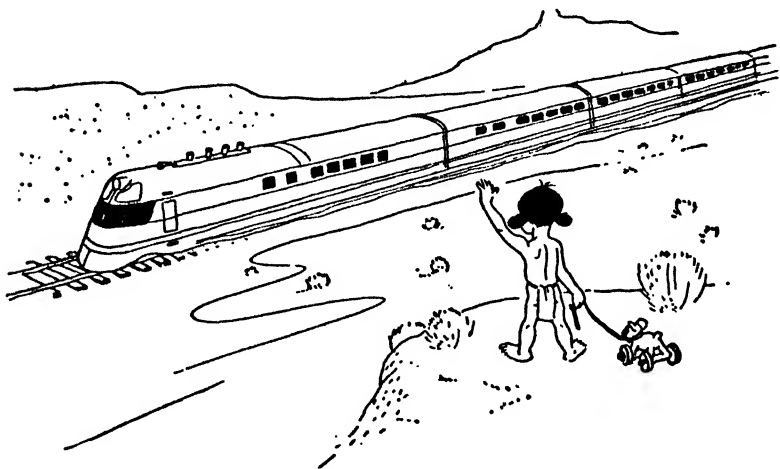
been discovered as far back as 1887, and, all the time we were being bullied, the Professors knew about them but decided the evidence could be ignored as the reference was obscure and had never been quoted. There's Science for you, with a big S.

In 1887, a Frenchman, Desiré de Charnay, was digging in southern Mexico and found several little clay animals with semi-circular protuberances instead of legs, with a hole through each lump, making a sort of bearing. Four perforated clay disks accompanied each animal, and when Charnay pushed twigs through the disks and bearings, he had little wheeled toys that could be rolled back and forth on a board. This was all published in 1887 in his *Ancient Cities of the New World*, a book that is rarely mentioned and is rather scarce, probably due to most of the copies having been bought up and burned by Dr. Phuddy Duddy.

Then in 1940, Matthew Stirling, Chief of the Bureau of American Ethnology, digging at Tres Zapotes in Vera Cruz on the east coast of Mexico, found two more wheeled pottery toys, but in this case the axles ran through clay cylinders on which the little pottery dogs (?) were standing. It was only when we saw these toys illustrated in the *National Geographic* for September, 1940, that we learned the whole truth and came to realize the dastardly deception which had been practiced upon us. For a time it came near to destroying our faith in our fellow men, but we remembered in time what Marcus Aurelius had once said: "If any man can convince me and bring home to me that I do not think or act aright, gladly will I change; for I search after truth, by which man never yet was harmed. But he is harmed who abideth on still in his deception and ignorance." So now the tide of justice is rising as it becomes apparent that although Indians in Mexico possessed the knowledge of the mechanism of the wheel and

axle, the most they were able to accomplish with this knowledge was to apply it to a child's toy.

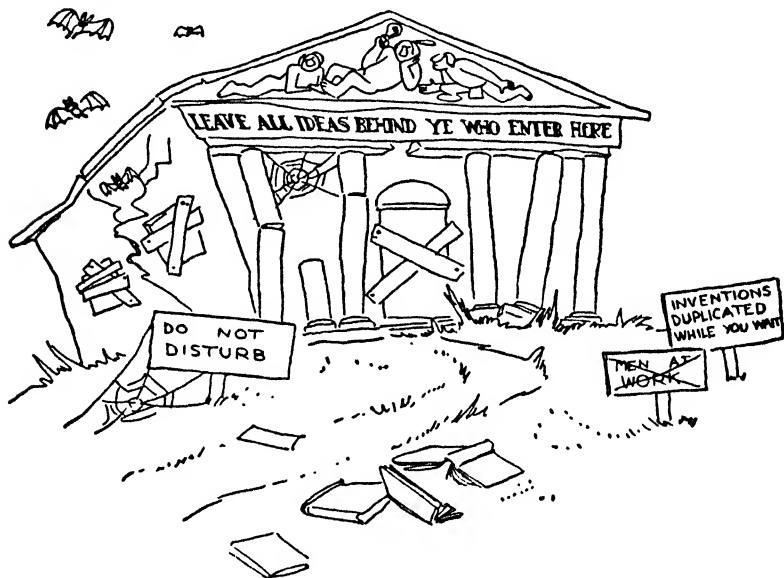
We have tried to arm you against those arguments which have most frequently been employed in attempts to squelch us, but these precautions may be needless. During the last few years things have been going very badly for the Old Guard. Evidence which is urgently needed has not been forthcoming, and to make



matters even worse the old ideas about chronology—which used to be accepted as Gospel—are being clipped instead of extended. As work proceeds in both the Old and New Worlds more and more things are being found to have been shared by the peoples of Asia and America, and it is becoming increasingly clear that such traits can be grouped into cultural assemblages which cannot be dismissed by generalities that have lost their glitter.

The Voices of Authority, which have always insisted that American Indians were independently responsible for the origin, evolution and development of the five great native cultures, are

losing their vim, vigor and vitality, and we doubt if you will be plagued as we have been. It is no longer enough for these Voices to assert that their American Indian race was *equal* in inventive ingenuity to the peoples of the Old World; as the span of dates is shortened, the Voices are lowered to whisper that the American Indian must have been mentally *superior* to the European and



the Asiatic, since he required less than half the time to achieve his duplications. Unfortunately for the theory, however, there are the last 450 years of recorded history during which there have been few, if any, instances of native Indian discoveries or inventions within the great centers of culture, and this is all the more unfortunate since inventions have been said to be adaptations or applications of existing knowledge, so that with the great fund the Indians possessed in 1492 and with what the white man brought

them, they should have made things hum during the last four and a half centuries.

If you have ever gone out to spend the evening and, returning at 1:00 A.M., have found that you left the key to the front door on your dressing table, you will know how we feel in ending this discussion. All the lights in the House of the High Priests of American Anthropology are out; all the doors and windows are shut and securely fastened (they do not sleep with their windows open for fear that a new idea might fly in); we have rung the bell of Reason, we have banged on the door with Logic, we have thrown the gravel of Evidence against their windows; but the only sign of life in the house is an occasional snore of Dogma.

We are very much afraid that no one is going to come down and let us into the warm, musty halls where the venerable old ideas are nailed to the walls. So it looks as if we will have to make ourselves as comfortable as possible in the doghouse, while we ponder our problems and wait for the dawn of a new day.



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